THE

ARCHITECTURAL MAGAZINE.

OCTOBER, 1838.

ORIGINAL COMMUNICATIONS.

Art. I. *The Poetry of Architecture.* By Kata Phusin.

No. 3. The Villa. (Continued.)

III. *The English Villa. — Principles of Composition.*

It has lately become a custom, among the more enlightened and refined of metropolitan shopkeepers, to advocate the cause of propriety in architectural decoration, by ensconcing their shelves, counters, and clerks in classical edifices, agreeably ornamented with ingenious devices, typical of the class of articles to which the tradesman particularly desires to direct the public attention. We find our grocers enshrined in temples whose columns are of canisters, and whose pinnacles are of sugarloaves. Our shoemakers shape their soles under Gothic portals, with pendants of shoes, and canopies of Wellingtons; and our cheesemongers will, we doubt not, soon follow the excellent example, by raising shops the varied diameters of whose jointed columns, in their address to the eye, shall awaken memories of Staffa, Pæstum, and Palmyra; and, in their address to the tongue, shall arouse exquisite associations of remembered flavour, Dutch, Stilton, and Strachino. Now, this fit of taste on the part of our tradesmen is only a coarse form of a disposition inherent in the human mind. Those objects to which the eye has been most frequently accustomed, and among which the intellect has formed its habits of action, and the soul its modes of emotion, become agreeable to the thoughts, from their correspondence with their prevailing cast, especially when the business of life has had any relation to those objects; for it is in the habitual and necessary occupation that the most painless hours of existence are passed: whatever be the nature of that occupation, the memories belonging to it will always be agreeable, and, therefore, the objects awakening such memories will invariably be found beautiful, whatever their character or form. It is thus that taste is the child and the slave of memory; and beauty is tested, not by any fixed standard, but by the chances of association; so that in every domestic building evidence will be found of the kind of life through which its owner has passed, in the operation of the habits of mind which that life has induced. From the super-

annuated coxswain, who plants his old ship's figure-head in his six square feet of front garden at Bermondsey, to the retired noble, the proud portal of whose mansion is surmounted by the broad shield and the crested gryphon, we are all guided, in our purest conceptions, our most ideal pursuit, of the beautiful, by remembrances of active occupation, and by principles derived from industry regulate the fancies of our repose.

It would be excessively interesting to follow out the investigation of this subject more fully, and to show how the most refined pleasures, the most delicate perceptions, of the creature who has been appointed to eat bread by the sweat of his brow, are dependent upon, and intimately connected with, his hours of labour. This question, however, has no relation to our immediate object, and we only allude to it, that we may be able to distinguish between the two component parts of individual character; the one being the consequence of continuous habits of life acting upon natural temperament and disposition, the other being the *humour* of character, consequent upon circumstances altogether accidental, taking stern effect upon feelings previously determined by the first part of the character; laying on, as it were, the finishing touches, and occasioning the innumerable prejudices, fancies, and eccentricities, which, modified in every individual to an infinite extent, form the visible veil of the human heart.

Now, we have defined the province of the architect to be, that of selecting such forms and colours as shall delight the mind, by preparing it for the operations to which it is to be subjected in the building. Now, no forms, in domestic architecture, can thus prepare it more distinctly than those which correspond closely with the first, that is, the fixed and fundamental, part of character, which is always so uniform in its action, as to induce great simplicity in whatever it designs. Nothing, on the contrary, can be more injurious than the slightest influence of the *humours* upon the edifice; for the influence of what is fitful in its energy, and petty in its imagination, would destroy all the harmony of parts, all the majesty of the whole; would substitute singularity for beauty, amusement for delight, and surprise for veneration. We could name several instances of buildings erected by men of the highest talent, and the most perfect general taste, who yet, not having paid much attention to the first principles of architecture, permitted the humour of their disposition to prevail over the majesty of their intellect, and, instead of building from a fixed design, gratified freak after freak, and fancy after fancy, as they were caught by the dream or the desire; mixed mimicries of incongruous reality with incorporations of undisciplined ideal; awakened every variety of contending feeling and unconnected memory; consummated confusion of form by trickery

of detail; and have left barbarism, where half the world will look for loveliness.

This is a species of error which it is very difficult for persons paying superficial and temporary attention to architecture to avoid: however just their taste may be in criticism, it will fail in creation. It is only in moments of ease and amusement that they will think of their villa: they make it a mere plaything, and regard it with a kind of petty exultation, which, from its very nature, will give liberty to the light fancy, rather than the deep feeling, of the mind. It is not thought necessary to bestow labour of thought, and periods of deliberation, on one of the toys of life; still less to undergo the vexation of thwarting wishes, and leaving favourite imaginations, relating to minor points, unfulfilled, for the sake of general effect.

This feeling, then, is the first to which we would direct attention, as the villa architect's chief enemy: he will find it perpetually and provokingly in his way. He is requested, perhaps, by a man of great wealth, nay, of established taste in some points, to make a design for a villa in a lovely situation. The future proprietor carries him up-stairs to his study, to give him what he calls his "ideas and materials," and, in all probability, begins somewhat thus: — "This, sir, is a slight note: I made it on the spot: approach to Villa Reale, near Pozzuoli. Dancing nymphs, you perceive; cypresses, shell fountain. I think I should like something like this for the approach: classical, you perceive, sir; elegant, graceful. Then, sir, this is a sketch, made by an American friend of mine: Whee-whaw-Kantamaraw's wigwam, king of the — Cannibal Islands, I think he said, sir. Log, you observe; scalps, and boa constrictor skins: curious. Something like this, sir, would look neat, I think, for the front door; don't you? Then, the lower windows, I've not quite decided upon; but what would you say to Egyptian, sir? I think I should like my windows Egyptian, with hieroglyphics, sir; storks and coffins, and appropriate mouldings above: I brought some from Fountains Abbey the other day. Look here, sir; angels' heads putting their tongues out, rolled up in cabbage leaves, with a dragon on each side riding on a broomstick, and the devil looking on from the mouth of an alligator, sir.* Odd, I think; interesting. Then the corners may be turned by octagonal towers, like the centre one in Kenilworth Castle; with Gothic doors, portcullis, and all, quite perfect; with cross slits for arrows, battlements for musketry, machicolations for boiling lead, and a room at the top for drying plums; and the conservatory at the bottom, sir, with Virginian creepers up the towers; door supported by sphinxes, holding scrapers in their fore paws, and having their tails prolonged into warm-water pipes, to keep

* Actually carved on one of the groins of Roslin Chapel.

the plants safe in winter, &c." The architect is, without doubt, a little astonished by these ideas and combinations; yet he sits calmly down to draw his elevations, as if he were a stone-mason, or his employer an architect; and the fabric rises to electrify its beholders, and confer immortality on its perpetrator. This is no exaggeration: we have not only listened to speculations on the probable degree of the future majesty, but contemplated the actual illustrious existence, of several such buildings, with sufficient beauty in the management of some of their features to show that an architect had superintended them, and sufficient taste in their interior economy to prove that a refined intellect had projected them; and had projected a Vandalism, only because fancy had been followed instead of judgment; with as much *nonchalance* as is evinced by a perfect poet, who is extemporising doggerel for a baby; full of brilliant points, which he cannot help, and jumbled into confusion, for which he does not care.

Such are the first difficulties to be encountered in villa designs. They must always continue to occur in some degree, though they might be met with ease by a determination on the part of professional men to give no assistance whatever, beyond the mere superintendence of construction, unless they be permitted to take the whole exterior design into their own hands, merely receiving broad instructions respecting the style (and not attending to them unless they like). They should not make out the smallest detail, unless they were answerable for the whole. In this case, gentlemen architects would be thrown so utterly on their own resources, that, unless those resources were adequate, they would be obliged to surrender the task into more practised hands; and, if they were adequate, if the amateur had paid so much attention to the art as to be capable of giving the design perfectly, it is probable he would not erect anything strikingly abominable.

Such a system (supposing that it could be carried fully into effect, and that there were no such animals as sentimental stone-masons to give technical assistance) might, at first, seem rather an encroachment on the liberty of the subject, inasmuch as it would prevent people from indulging their edificatorial fancies, unless they knew something about the matter, or, as the sufferers would probably complain, from doing what they liked with their own. But the mistake would evidently lie in their supposing, as people too frequently do, that the outside of their house *is* their own, and that they have a perfect right therein to make fools of themselves in any manner, and to any extent, they may think proper. This is quite true in the case of interiors: every one has an indisputable right to hold himself up as a laughing-stock to the whole circle of his friends and acquaintances, and to consult his

own private asinine comfort by every piece of absurdity which can in any degree contribute to the same; but no one has any right to exhibit his imbecilities at other people's expense, or to claim the public pity by inflicting public pain. In England, especially, where, as we saw before, the rage for attracting observation is universal, the outside of the villa is rendered, by the proprietor's own disposition, the property of those who daily pass by, and whom it hourly affects with pleasure or pain. For the pain which the eye feels from the violation of a law to which it has been accustomed, or the mind from the occurrence of anything jarring to its finest feelings, is as distinct as that occasioned by the interruption of the physical economy, differing only inasmuch as it is not permanent; and, therefore, an individual has as little right to fulfil his own conceptions by disgusting thousands, as, were his body as impenetrable to steel or poison, as his brain to the effect of the beautiful or true, he would have to decorate his carriage roads with caltrops, or to line his plantations with upas trees.

The violation of general feelings would thus be unjust, even were their consultation productive of continued vexation to the individual: but it is not. To no one is the architecture of the exterior of a dwelling-house of so little consequence as to its inhabitant. Its material may affect his comfort, and its condition may touch his pride; but for its architecture, his eye gets accustomed to it in a week, and, after that, Hellenic, Barbaric, or Yankee, are all the same to the domestic feelings, are all lost in the one name of home. Even the conceit of living in a châlet, or a wigwam, or a pagoda, cannot retain its influence for six months over the weak minds which alone can feel it; and the monotony of existence becomes to them exactly what it would have been had they never inflicted a pang upon the unfortunate spectators, whose unaccustomed eyes shrink daily from the impression to which they have not been rendered callous by custom, or lenient by false taste. If these considerations are just when they allude only to buildings in the abstract, how much more when referring to them as materials of composition, materials of infinite power, to adorn or destroy the loveliness of the earth. The nobler scenery of that earth is the inheritance of all her inhabitants: it is not merely for the few to whom it temporarily belongs, to feed from like swine, or to stable upon like horses, but it has been appointed to be the school of the minds which are kingly among their fellows, to excite the highest energies of humanity, to furnish strength to the lordliest intellect, and food for the holiest emotions of the human soul. The presence of life is, indeed, necessary to its beauty, but of life congenial with its character; and that life is not congenial which thrusts presumptuously forward, amidst the calmness of the universe, the

confusion of its own petty interests and grovelling imaginations, and stands up with the insolence of a moment, amidst the majesty of all time, to build baby fortifications upon the bones of the world, or to sweep the copse from the corrie, and the shadow from the shore, that fools may risk, and gamblers gather, the spoil of a thousand summers.

It should therefore be remembered, by every proprietor of land in hill country, that his possessions are the means of a peculiar education, otherwise unattainable, to the artists, and, in some degree, to the literary men, of his country; that, even in this limited point of view, they are a national possession, but much more so when it is remembered how many thousands are perpetually receiving from them, not merely a transitory pleasure, but such thrilling perpetuity of pure emotion, such lofty subject for scientific speculation, and such deep lessons of natural religion, as only the work of a Deity can impress, and only the spirit of an immortal can feel: they should remember that the slightest deformity, the most contemptible excrescence, can injure the effect of the noblest natural scenery, as a note of discord can annihilate the expression of the purest harmony; that thus it is in the power of worms to conceal, to destroy, or to violate, what angels could not restore, create, or consecrate; and that the right, which every man unquestionably possesses, to be an ass, is extended only, in public, to those who are innocent in idiotism, not to the more malicious clowns who thrust their degraded motley conspicuously forth amidst the fair colours of earth, and mix their incoherent cries with the melodies of eternity, break with their inane laugh upon the silence which Creation keeps where Omnipotence passes most visibly, and scrabble over with the characters of idiocy the pages that have been written by the finger of God.

These feelings we would endeavour to impress upon all persons likely to have anything to do with embellishing, as it is called, fine natural scenery; as they might, in some degree, convince both the architect and his employer of the danger of giving free play to the imagination in cases involving intricate questions of feeling and composition, and might persuade the designer of the necessity of looking, not to his own acre of land, or to his own peculiar tastes, but to the whole mass of forms and combination of impressions with which he is surrounded.

Let us suppose, however, that the design is yielded entirely to the architect's discretion. Being a piece of domestic architecture, the chief object in its exterior design will be to arouse domestic feelings, which, as we saw before, it will do most distinctly by corresponding with the first part of character. Yet it is still more necessary that it should correspond with its situation; and hence arises another difficulty, the reconciliation of correspond-

ence with contraries; for such, it is deeply to be regretted, are too often the individual's mind, and the dwelling-place it chooses. The polished courtier brings his refinement and duplicity with him, to ape the Arcadian rustic in Devonshire; the romantic rhymer takes a plastered habitation, with one back window looking into the green park; the soft votary of luxury endeavours to rise at seven, in some Ultima Thule of frost and storms; and the rich stock-jobber calculates his per-centages among the soft dingles and woody shores of Westmoreland. When the architect finds this to be the case, he must, of course, content himself with suiting his design to such a mind as ought to be where the intruder's is; for the feelings which are so much at variance with themselves in the choice of situation, will not be found too critical of their domicile, however little suited to their temper. If possible, however, he should aim at something more; he should draw his employer into general conversation; observe the bent of his disposition, and the habits of his mind; notice every manifestation of fixed opinions, and then transfer to his architecture as much of the feeling he has observed as is distinct in its operation. This he should do, not because the general spectator will be aware of the aptness of the building, which, knowing nothing of its inmate, he cannot be; nor to please the individual himself, which it is a chance if any simple design ever will, and who never will find out how well his character has been fitted; but because a portrait is always more spirited than a composed countenance; and because this study of human passions will bring a degree of energy, unity, and originality into every one of his designs (all of which will necessarily be different), so simple, so domestic, and so lifelike, as to strike every spectator with an interest and a sympathy, for which he will be utterly unable to account, and to impress on him a perception of something more ethereal than stone or carving, somewhat similar to that which some will remember having felt disagreeably in their childhood, on looking at any old house authentically haunted. The architect will forget in his study of life the formalities of science, and, while his practised eye will prevent him from erring in technicalities, he will advance, with the ruling feeling, which, in masses of mind, is nationality, to the conception of something truly original, yet perfectly pure.

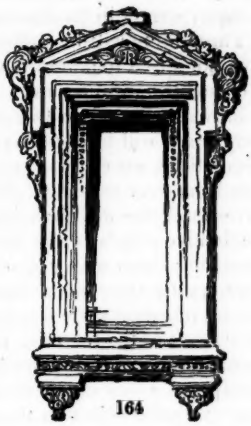
He will also find his advantage in having obtained a guide in the invention of decorations of which, as we shall show, we would have many more in English villas than economy at present allows. Candidus complains, in his Note-Book, that Elizabethan architecture is frequently adopted, because it is easy, with a pair of scissors, to derive a zigzag ornament from a doubled piece of paper. But we would fain hope that none of our professional architects have so far lost sight of the meaning of their art, as to

believe that roughening stone mathematically is bestowing decoration, though we are too sternly convinced that they believe mankind to be more shortsighted by at least thirty yards than they are; for they think of nothing but general effect in their ornaments, and lay on their flower-work so carelessly, that a good substantial captain's biscuit, with the small holes left by the penetration of the baker's four fingers, encircling the large one which testifies of the forcible passage of his thumb, would form quite as elegant a rosette as hundreds now perpetuated in stone. Now, there is nothing which requires study so close, or experiment so frequent, as the proper designing of ornament. For its use and position some definite rules may be given; but, when the space and position have been determined, the lines of curvature, the breadth, depth, and sharpness of the shadows to be obtained, the junction of the parts of a group, and the general expression, will present questions for the solution of which the study of years will sometimes scarcely be sufficient*; for they depend upon the feeling of the eye and hand, and there is nothing like perfection in decoration, nothing which, in all probability, might not, by farther consideration, be improved. Now, in cases in which the outline and larger masses are determined by situation, the architect will frequently find it necessary to fall back upon his decorations, as the only means of obtaining character; and that which before was an unmeaning lump of jagged freestone, will become a part of expression, an accessory of beautiful design, varied in its form, and delicate in its effect. Then, instead of shrinking from his bits of ornament, as from things which will give him trouble to invent, and will answer no other purpose than that of occupying what would otherwise have looked blank, the designer will view them as an efficient *corps de réserve*, to be brought up when the eye comes to close quarters with the edifice, to maintain and deepen the impression it has previously received. Much more time will be spent in the conception, much more labour in the execution, of such meaning ornament, but both will be well spent, and well rewarded.

Perhaps our meaning may be made more clear by *fig.* 164., which is that of a window found in a domestic building of mixed and corrupt architecture, at Munich (which we give now, because we shall have occasion to allude to it hereafter). Its absurd breadth of moulding, so disproportionate to its cornice, renders it excessively ugly, but capable of great variety of effect. It forms one of a range of four, turning an angle, whose mould-

* For example, we would allow one of the modern builders of Gothic chapels a month of invention, and a botanic garden to work from, with perfect certainty that he would not, at the expiration of the time, be able to present us with one design of leafage equal in beauty to hundreds we could point out in the capitals and niches of Melrose and Roslin.

ings join each other, their double breadth being the whole separation of the apertures, which are something more than double squares. Now, by alteration of the decoration, and depth of shadow, we have *figs.* 165. and 166. These three windows differ entirely in their feeling and manner, and are broad examples of such distinctions of style as might be adopted severally in the habitations of the man of imagination, the man of intellect, and the man of feeling. If our alterations have been properly made, there will be no difficulty in distinguishing between their expressions, which we shall therefore leave to conjecture. The character of *fig.* 164. depends upon the softness with which the light is caught upon its ornaments, which should not have a single hard line in them; and on the gradual, unequal, but intense, depth of its shadows. *Fig.* 165. should have all its forms undefined, and passing into one another, the touches of the



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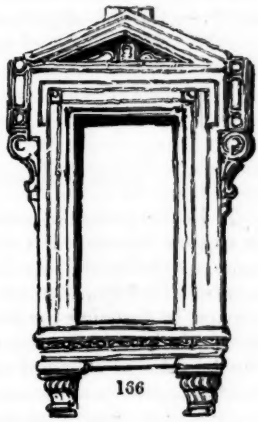

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chisel light, a grotesque face or feature occurring in parts, the shadows pale, but broad *; and the boldest part of the carving

* It is too much the custom to consider a design as composed of a certain number of hard lines, instead of a certain number of shadows of various depth

kept in shadow rather than light. The third should be hard in its lines, strong in its shades, and quiet in its ornament.

These hints will be sufficient to explain our meaning, and we have not space to do more, as the object of these papers is rather to observe than to advise. Besides, in questions of expression so intricate, it is almost impossible to advance fixed principles; every mind will have perceptions of its own, which will guide its speculations, every hand, and eye, and peculiar feeling, varying even from year to year. We have only started the subject of correspondence with individual character, because we think that imaginative minds might take up the idea with some success, as furnishing them with a guide in the variation of their designs, more certain than mere experiment on unmeaning forms, or than ringing indiscriminate changes on component parts of established beauty. To the reverie, rather than the investigation, to the dream, rather than the deliberation, of the architect, we recommend it, as a branch of art in which instinct will do more than precept, and inspiration than technicality. The correspondence of our villa architecture with our natural scenery may be determined with far greater accuracy, and will require careful investigation.

We had hoped to have concluded the Villa in this paper; but the importance of domestic architecture at the present day, when people want houses more than fortresses, safes more than keeps, and sculleries more than dungeons, is sufficient apology for delay. — *Oxford, August*, 1838.

ART. II. *Candidus's Note-Book.*

Fasciculus XIII.

"Sicut meus est mos,
Nescio quid meditans nugarum; et totus in illis."

I. IN the pamphlet entitled *What Style* (which, by the by, is in so very rigmarolish a style itself, that the greater part of it is quite unintelligible), Archilochus has one or two sensible remarks. Perhaps, therefore, I shall do both him and others a service, by rescuing the following observations from the oblivion to which his publication seems doomed. "The use made of the knowledge acquired of Grecian architecture derived from

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and dimension. Though these shadows change their position in the course of the day, they are relatively always the same. They have most variety under a strong light without sun, most expression with the sun. A little observation of the infinite variety of shade which the sun is capable of casting, as it touches projections of different curve and character, will enable the designer to be certain of his effects. We shall have occasion to allude to this subject again.

the works of Stuart, the Society of Dillettanti, and others, during the last century, has been to substitute its bald and meagre parts for the bold parts of Roman architecture, as practised by Inigo Jones, Wren, and Burlington; later architects being unable to comprehend why that which pleases cut with sharp angles in white marble, seen under a clear light and the influence of early associations, should not do so in a mock building, cut with blunt angles in Portland or Bath stone, under a London light. An architect, by adopting this style, and by dilating on simplicity, *relieves himself from the labour of design*, and a *multiplicity of drawings;* for his employers rarely are able to distinguish this indispensable quality, which means a just adaptation of one part to another, from simpleness or plainness and meagre mannerism. A portico with a pediment over it for a middle, and rows of columns on shelves (?) for wings, neither suited for shelter nor shade, holes for windows and doors, and, perhaps, slices of pilasters, whose capitals are in discord with those of the columns, and whose entablatures and columns are in different dialects, compose the principal fronts of London Grecian architecture, *in the best of which there is less labour of design and thought than in any one of the compartments of St. Paul's Cathedral!*" This is, for the most part, very true; yet the reproach conveyed in it falls not so much upon Grecian architecture itself, as on the dull and insipid routine we have established for copying it. More regard is paid to exactness of the individual members than to the spirit of the whole; nor is it attempted to make up for what is unavoidably lost, by striving to obtain effect by other means. Thus, while we are most superstitiously scrupulous in copying the columns of some one particular example, we make no scruple nor ceremony at all of omitting what was certainly not least important in regard to general character and effect; namely, the sculpture on the frieze and within the pediment. Hence, what was originally a rich entablature becomes, all above the architrave, a naked mass, totally at variance with the enriched columns. The cornice, which, taken in combination with the frieze, seemed to protect and give relief to the sculptures, seldom looks better than a meagre shelf, being in itself quite insufficient to serve as an ornamental finish to the whole, when the enrichments belonging to the frieze are expunged. A very disagreeable *hiatus* in the embellishment is thus occasioned; therefore, if sculpture cannot be obtained, on account of its expensiveness, something at least ought to be done to reconcile the entablature with the columns; and it might be easily effected by rendering the cornice itself more important and ornamental; or, should regard to economy forbid even that, the alternative would be to make the columns themselves as plain as the entablature.

II. I wonder if Mr. Parsey has one rule for the exteriors of

buildings, and another for interiors; or whether he applies his doctrine of vanishing perpendiculars to both? Suppose the subject to be a very lofty room — a hall, or church; would he, in such case, represent the end facing the spectator narrower at top than at bottom, and the sides, consequently, as leaning forwards and overhanging their base? But that which most of all puzzles me is, how Parsey can delude himself into the idea of his theory's being recognised by any one except himself; for do not those very persons who seem disposed to admit it, one and all agree in treating it as absolutely chimerical with regard to practice? Has he yet made a single convert? — one who assents to his doctrine, not merely verbally, but really, truly, and cordially, by availing himself of Mr. Parsey's vaunted discovery? Certainly not; and this says every thing against it: for it avails little that he tries to pass it off as a valuable discovery, when the very persons who seem to support him speculatively, proclaim one and all, by their refusing to adopt it further than speculatively, that it is utterly valueless, not only of no use, but of positive disservice.

III. It may be a mere prejudice, but I must confess that I have a dislike to framed and glazed prints, however excellent they may be as engravings. As a substitute for pictures, they appear to me anything but ornamental to a room. What are termed furniture prints are to me an abomination; as embellishments, they have a most paltry look; and, as specimens of art, are generally most paltry in themselves. For my own part, I should almost as soon think of hanging up a specimen of penmanship or typography as one of chalcography. For such things the portfolio is the proper receptacle. What are termed *furniture prints* are, indeed, almost without exception, such things as no man would admit into a portfolio; but that becomes a *raison de plus* for putting them out of sight altogether. And, now I am upon this subject, I would fain ask what becomes of the cartloads of trash that are paraded from time to time at the printshop windows? Is it possible that those who can afford to lay out their money, purchase such things; or that those to whose taste they appear to be adapted can find money to lay out upon them?

IV. It is singular, or, perhaps, I ought to say, it appears strange to myself, that so little should have been done towards explaining those terms of architecture we possess, and filling up their deficiencies by forming others analogically, the want of which must have been felt by every one who has had occasion to describe a building fully and clearly. I have hitherto sought in vain in technologies of architecture for the term *velum*, which is employed by Woods to express a pendentive cupola over a square plan, and, consequently, intersected at its base by four

planes, forming as many arches. It is an exceedingly convenient and a sufficiently expressive one, and also of obvious etymology; such dome resembling, in fact, an awning or velum stretched over four arch-headed walls. Where Woods picked it up, I know not; a confession, that, perhaps, says very little for my reading or my research. Britton has omitted it in his *Dictionary*.

V. The hall, or principal office, at the London and Westminster Bank, a square of about 36 ft., is covered by a *velum*, or pendentive dome, of the above description, with a smaller dome of singularly elegant design. The effect of this apartment is exceedingly striking: with scarcely anything of decoration, it is full of expression and character. There is something in it that may almost be termed poetic, or as a German would express it, *genial*. It is full of variety, yet perfectly simple. Contrary to what we observe in the greater part of modern buildings, very little seems to have been aimed at; yet a very great deal has been accomplished. Whether I beheld it to advantage, or disadvantage, by seeing it in a rather unfinished state, time must discover. There are, however, one or two things in it which criticism may attack; for instance, the balustrades cutting the upper part of the shafts of the columns supporting the three arches on the east and west sides: but these are trifling blemishes, that weigh as nothing against the fascination of the *ensemble*.

VI. The very best perspective view can convey but an imperfect idea of a building, or an apartment in one. In the latter case it is like only looking into a room from the door, without being allowed to advance a step further. Let us suppose that a person is permitted only to stand at the door of the King's Library in the British Museum: from that point he would be able to obtain an idea of the spaciousness of the room, and of its general arrangement and style of decoration; but there would be a great deal that he could make out very imperfectly, and which he must supply, as well as he could, by conjecture. In regard to effect, he would be able to judge only from that attending one particular appearance; whereas, in order to understand the value of an architectural design, either internal or external, it is requisite to be acquainted with the various appearances it presents as viewed in different directions, and to feel the impressions made on the eye and the imagination, as these appearances shift themselves and change from one to another. The utmost a drawing can accomplish is, to set before us the very best appearance, that which shall be the most striking and effective, among all that can be selected of the subject. But this, again, will sometimes be precisely that which is least of all calculated to explain the actual plan and nature of the design. In such cases, therefore, a single view goes but a very little way towards affording us satisfactory information, however satisfactory it may be considered as a picture.

ART. III. *Some Account of the Girard College for Orphans, now erecting at Philadelphia, from the Designs and under the Superintendence of Thomas U. Walter, Architect.* Drawn up from Materials printed and published in Philadelphia, and from the verbal Communications of Mr. Walter.

BEFORE giving a short description of this college, a general view of which is shown in *fig.* 167., it will not be out of place, we think, to give a short account of the founder, and an extract from his will.

BIOGRAPHICAL SKETCH OF STEPHEN GIRARD.

"*STEPHEN GIRARD* was born at Bordeaux, in France, in or about the year 1746. Little is known of the early period of his life; and his education is supposed to have been scanty and deficient; whether owing to the neglect of his parents, or the natural waywardness of youth, cannot now be known. A spirit of enterprise, a love of adventure, and a thirst of new scenes and untried situations, very early distinguished him; and, no doubt, as early impelled him to leave his native land, for foreign climes, and novel modes of existence. It has been said, but with what truth we are not now enabled to state, that parental oppression embittered the shelter of his domestic roof, and inspired him with the first thought of emigration: but it is so easy for the high temperament of youth to fancy that severe which is only just, and to plead the tyranny of parents in justification of their own want of filial piety, that we are bound, on all occasions, to listen to such narratives as the usual figments of the young, who are naturally disposed to embellish every thing with the tints of romance; and let fancy riot, where facts are obscured from their knowledge. It is most likely, taking into consideration the peculiar structure of the mind of Stephen Girard, that he was impelled by the natural enterprise of his vigorous spirit to quit the parental roof, and to launch himself at once into the boundless ocean of life, to taste its bitterest waters, or reach in safety its most secure harbour.

"At the age of twelve or fourteen, he is supposed to have left Bordeaux, in the capacity of a *cabin boy*, in a vessel bound to some port in the West Indies; where he is supposed to have remained, trading in that station, between the different islands, and to the United States, until he attained to the situation of mate; in which capacity he first arrived in this country, at the port of New York. How long he remained in that city, we are not informed. His arrival at New York was probably about the year 1775. From New York he removed into New Jersey, and was for some time settled at Mount Holly, when the American army was stationed in that vicinity. He here kept a small store, and manufactured cigars; a trade that he had probably acquired in some of the West India Islands. Mr. Girard settled in Philadelphia about the year 1779. In 1783, he inhabited a small frame tenement on the site of that elegant brick mansion in which he died; to which were annexed a range of two-storied wooden stores. At this period, his commerce was confined to *old iron and old rigging*. He then had no ship or vessel of any description. He was a poor man: obscure, little known, and less noticed.

"Mr. Girard, like all men of wealth, commenced the world with 'small beginnings.' At first a cabin boy; then mate of a small schooner; afterwards a shop keeper, selling cigars and groceries; then keeper of a small tavern, or store, in Water Street, Philadelphia, where he bottled claret, and continued his manufacture of cigars; Stephen Girard successively rose to the rank of the first merchant, and the most opulent banker, in the country; stimulated by never-tiring industry, and unremitting in his efforts to attain an independency. Though long poor, and unsuccessful in trade,

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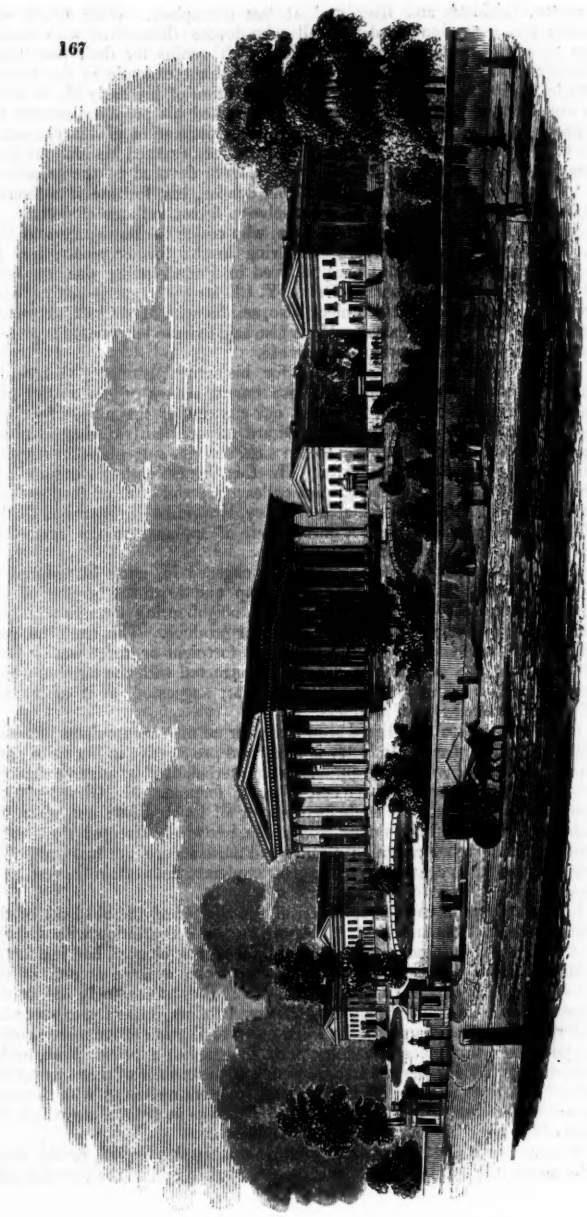

his motto, 'industry and frugality,' at last triumphed. With Mr. Girard, business was a passion; and, like all who devote themselves with enthusiasm to any pursuit, and who are gifted with genius for their profession, he finally succeeded in realising a fortune, without example in the history of trade, when the forlorn and destitute condition of his early life is taken into consideration. By what degrees he increased his property, cannot yet be known, and is not material to our proper estimation of his character. 'By their fruits ye shall know them.' Mr. Girard realised his millions from commerce; and his nights, as well as days, were devoted to the sorcery of the 'Water Witch.' At the time of his demise, his fortune is estimated to have amounted to the sum of from twelve to fifteen millions of dollars.

"Mr. Girard has left several relations, who reside in Bordeaux and this city. His brother and sister are still living in the former place; and he has two very accomplished nieces married in Philadelphia; one to John Hemphill, Esq., and another to Dr. J. Y. Clark: both gentlemen of opulence and respectability. A third niece, also, resides with Mrs. Clark, extremely amiable, and very accomplished. He is also said to have left several nephews, whose education he was careful to promote.

"No man has been more remarkable for his active personal philanthropy than Mr. Girard; especially amidst those horrid scenes of devastating pestilence that depopulated and scourged our city, under the name of yellow fever. In 1793, more particularly, Mr. Girard was eminently distinguished for his active exertions in ministering to the sick, and devising plans for the prevention and restriction of contagion. In this laudable, but perilous and appalling, work Mr. Girard had but few colleagues; and of those few, but one now survives, in the person of Matthew Carey, Esq., alike distinguished for his usefulness, and who has paid a just tribute of applause to the exemplary labours of Mr. Girard in that eventful crisis.

"Perhaps the first business Mr. Girard engaged in, upon his coming to Philadelphia, was that of an *aquatic pedlar*, up and down the borders of the Delaware, as far as Trenton; supplying the neighbouring farmers with groceries and ready-made clothing, for money or produce. This trade he prosecuted in a small sail-boat, returning every fortnight or three weeks for a fresh supply. The acquaintances he had contracted with the farmers whilst keeping store at Mount Holly had, no doubt, suggested, as it afterwards facilitated, this exchange of products.

"It was long before Mr. Girard grew rich; for no man accumulates immense wealth by sudden means. Industry is tardy and progressive in her gains; and even speculation, when most favourable, is counterbalanced by adverse chances, that often subtract from the harvest of good fortune. Mr. Girard was occupied in commerce when it made fortunes for all its votaries; but, when the 'Water Witch' turned her smiles from trade, he wisely directed the greater portion of his immense capital into other and more secure, but less profitable, channels; and thus continued to reap a moderate but certain harvest, at a time when others were losing even their seed-grain.

"Immediately prior to the expiration of the charter of the old bank of the United States, in 1810 and 1811, Mr. Girard, upon consultation with George Simpson, Esq., who calculated on the renewal of the charter, had instructed the Messrs. Baring of London to purchase for him a large amount of the stock of the Bank of the United States; which they accordingly did, to the net value of one million eight hundred thousand dollars, under the expectation of the renewal of the charter, and a consequent realisation of immense profits. Disappointed in this object, he determined to establish a *private bank*, under the superintendence of the late George Simpson, the cashier of that institution, to whom he chiefly confided its transactions; contenting himself with the mere approval of its discounting transactions. This was in 1812, since which the capital of the bank has augmented to five millions.

"A more useful and liberal application of this surplus capital, to the wants of the mercantile community, at that peculiar crisis, and at the common rate

of interest, could not well have been imagined. His bank, conducted on liberal principles, realised profit to himself, and immense facilities to the public. The capital of the old bank of the United States had then just been abstracted from circulation; and Mr. Girard's two millions went far to arrest bankruptcies, ease the money market, and restore public confidence and credit to their wonted elasticity.

"Mr. Girard became a very heavy subscriber to the present bank of the United States; in the management of which he was for many years active and efficient; always on the side of sound principles, and firmly opposed to its measures during the era of the speculation in its stock. At the time of its institution, he had government deposits to the amount of one million in his bank, which was paid into the vaults of the new institution with great rapidity, and so efficiently in the form of specie, as to contribute essentially to the restoration of the currency to its ancient metallic soundness. In a very short time, he brought the Bank of the United States into his debt, and, with few exceptions, ever after kept it so. Few of the monied institutions of the country could have accomplished as much as this opulent banker to aid the government in producing the resumption of specie payments.

"Although opposed to the system of *speculation* in the stock of the Bank of the United States, Mr. Girard could not fail to profit by the public delirium that it had excited. By the stock he sold out at that period, he gained a clear half million of dollars, when it commanded 150 to 160 advance; still retaining a share in the stock greater than that of any other individual in the country.

"The loan of five millions was taken by Mr. Girard, of the government, in the darkest hour of the last war, and when trembling at the brink, or rather floundering in the gulf, of bankruptcy and discredit. The temptation of great profit was certainly powerful, to receive 100 seven per cent stock for 70! But, on the other hand, the risk of loss appeared great; public credit had expired, and the hopes of the stoutest hearts began to wither. It was an hour that 'tried men's souls,' and locked up the capital of the country in the vaults of fear and suspicion. Great as was the temptation of profit, few were found willing to put their capital in jeopardy, under the frowning aspect of the times; when the Union was hanging by a single hair, and the country every day falling into the hands of the enemy.

"The habits of Mr. Girard were exclusively those of the man of business. He had no pleasures, but in the performance of active duties: always to be found busy in his counting-room, or bustling on his farm, for he was also fond of agriculture; feeding his own cattle, curing his own beef, and even bestowing his attention on the culture of a vegetable garden, the produce of which he caused to be taken to market. His fruits and his flowers were also of the most choice kind. But in his hands (for his was the touch of Midas) every thing was turned into gold; and fruits, flowers, vegetables, ships, houses, lots, bank, and all, contributed, in the end, to pour millions in his lap. Like all men of immense wealth, it was his peculiar delight, to cast his eyes over the aggregate of his millions. But he took most pleasure in adding house to house, lot to lot, until he could count his squares of buildings, and found it impossible to count the number of his deeds, parchments, and warrants. To the Schuylkill Navigation Company he was an efficient friend in the hour of need, as well as to the Chesapeake Canal Company, and other public works of vast importance and lasting utility. In the arduous struggle of the Bank of the United States to resume specie payments, Mr. Girard, under the counsels and influence of his cashier, Mr. Simpson, was essentially instrumental in producing that result, as well as interposing his voice to reclaim the bank from the gulf of speculation, and place it on a proper basis; for which he offered to the Bank of the United States all his capital, specie, &c., if they would appoint George Simpson cashier, and conduct it on his legitimate principles.

"Mr. Girard has no children to mourn his demise; but the whole com-

munity will feel his sudden departure, and our city long have cause to deplore his exit to the world of spirits!

"In one sense, and in the best sense, Mr. Girard may be justly called a public benefactor; not less for the public improvements he projected and accomplished during his lifetime, which were unequalled by those of any other individual, than for the beneficent public objects for which he has bequeathed the chief part of his fortune. Even at the time of his death, his operations as a merchant were very extensive; and the commerce of Philadelphia will long deplore the abstraction of his capital from its business.

"The great public benefactions made by the will of Stephen Girard, which we here annex, and which cannot fail to excite the interest and curiosity of every rational mind, proclaim him as one of the first philanthropists of the age; and, however individual selfishness among his friends or his kinsmen might regret the direction his immense fortune has taken, but which we believe is not the case, yet an enlightened benevolence will rejoice that his great wealth has been devised, with unparalleled patriotism and public spirit, for the benefit of the community, and not the gratification of private passions or individual avarice.

"His liberal endowments for the purposes of education would alone shed lustre on his name, and insure him an immortality in the hearts of all future generations. To enlighten the mind of the people, is to improve their virtue and extend their usefulness, not less than their happiness, comfort, and freedom.

"Mr. Girard's understanding, in point of intellectual power, was certainly one of the first order. He thought much, and thought profoundly; but, as is often the case with the strongest minds, his train of reflection was frequently apt to describe an eccentric orbit. Yet in the ordinary affairs of business, he was, for that very reason, more correct, or, if you please, more fortunate, than the regular right-angled speculators of the day. His principal trait of mind was anticipation. He had digested topics, when others were only beginning to think of them; and the common observer was often astonished to find that what he thought he was communicating as news to Mr. Girard, was a matter quite familiar to him; and that, on the strength of it, he was already employed in loading a ship, or prosecuting a speculation.

"Mr. Girard, in his person, was of stout frame, about 5 ft. 6 in. in height. His manners were plain; and in conversation he was taciturn, except on business; and, being generally engaged by his numerous avocations, he was impatient of all conversation, except what related to his pursuits on hand. In his mode of living, he was plain, simple, and void of ostentation. The routine of high life never had charms to withdraw him from his early habits of simplicity, even in the zenith of his fortune. His recreation was business; he knew no other pleasure, and labour was to him delight. He was particularly fond of working on his farm, and he outworked all the labourers he employed. At the very close of life, he allowed himself no respite from business, never dreamed of retiring; but, in the words of our great dramatic poet, adapted to his civil pursuits, he may be said to have 'died with harness on his back.'"

Stephen Girard's Will. — After giving 30,000 dollars to the Pennsylvania Hospital, 20,000 dol. to the Pennsylvania Institution for the Deaf and Dumb, 10,000 dol. to the Orphan Asylum of Philadelphia, 10,000 dol. for the use of the Lancasterian Schools in Philadelphia, 10,000 dol. in trust, safely to invest the same in some productive fund, and with the interest and dividends arising therefrom to purchase fuel between the months of March and August in every year, for ever, and, in the month of January in every year, for ever, distribute the same amongst poor white house-

keepers and roomkeepers, of good character, residing in the city of Philadelphia; 10,000 dol. to the Society for the Relief of poor and distressed Masters of Ships, their Widows and Children, 20,000 dol. to the Grand Lodge of Philadelphia, 60,000 dol. for a school in Passyunk township, and a great many legacies of from 5 to 50,000 dol. to his relations, and to each of the captains who shall be in his employment at the time of his decease, and to each of his servants and apprentices, besides various bequests to the city of New Orleans; he at last comes to the Girard College; and the following extract will show that it was uppermost in his mind: —

"And so far as regards the residue of my personal estate, in trust, as to two millions of dollars, part thereof to apply and expend so much of that sum as may be necessary, in erecting, as soon as practicably may be, in the centre of my square of ground between High and Chestnut Streets, and Eleventh and Twelfth Streets, in the city of Philadelphia (which square of ground I hereby devote for the purposes hereinafter stated, and for no other, for ever), a permanent college, with suitable out-buildings, sufficiently spacious for the residence and accommodation of at least three hundred scholars, and the requisite teachers and other persons necessary in such an institution as I direct to be established; and in supplying the said college and out-buildings with decent and suitable furniture, as well as books and all things needful to carry into effect my general design.

"The said college shall be constructed with the most durable materials, and in the most permanent manner, avoiding needless ornament, and attending chiefly to the strength, convenience, and neatness of the whole. It shall be at least 110 ft. east and west, and 160 ft. north and south, and shall be built on lines parallel with High and Chestnut Streets, and Eleventh and Twelfth Streets, provided those lines shall constitute at their junction right angles. It shall be three stories in height, each story at least 15 ft. high in the clear from the floor to the cornice; it shall be fire-proof inside and outside. The floors and the roof to be formed of solid materials, on arches turned on proper centres, so that no wood may be used, except for doors, windows, and shutters. Cellars shall be made under the whole building, solely for the purposes of the institution; the doors to them from the outside shall be on the east and west of the building, and access to them from the inside shall be had by steps, descending to the cellar floor from each of the entries or halls hereinafter mentioned, and the inside cellar doors to open under the stairs on the north-east and north-west corners of the northern entry, and under the stairs on the south-east and south-west corners of the southern entry; there should be a cellar window under, and in a line with each window in the first story; they should be built one half below, the other half above, the surface of the ground, and the ground outside each window should be supported by stout walls; the sashes should open inside, on hinges, like doors, and there should be strong iron bars outside each window; the windows inside and outside should not be less than 4 ft. wide in the clear. There shall be in each story four rooms, each room not less than 50 ft. square in the clear; the four rooms on each floor to occupy the whole space east and west on such floor or story, and the middle of the building north and south; so that in the north of the building, and in the south thereof, there may remain a space of equal dimensions, for an entry or hall in each, for stairs and landings. In the north-east and in the north-west corners of the northern entry or hall on the first floor, stairs shall be made so as to form a double staircase, which shall be carried up through the several stories; and, in like manner, in the south-east and south-west corners of the southern entry or hall, stairs shall be made, on the first floor, so as to

form a double staircase, to be carried up through the several stories; the steps of the stairs to be made of smooth white marble, with plain square edges, each step not to exceed 9 in. in the rise, nor to be less than 10 in. in the tread; the outside and inside foundation walls shall be at least 10 ft. high in the clear from the ground to the ceiling; the first floor shall be at least 3 ft. above the level of the ground around the building, after that ground shall have been so regulated as that there shall be a gradual descent from the centre to the sides of the square formed by High and Chestnut and Eleventh and Twelfth Streets; all the outside foundation walls, forming the cellars, shall be 3 ft. 6 in. thick up to the first floor, or as high as may be necessary to fix the centres for the first floor; and the inside foundation wall, running north and south, and the three inside foundation walls, running east and west (intended to receive the interior walls for the four rooms, each not less than 50 ft. square in the clear, above mentioned), shall be 3 ft. thick up to the first floor, or as high as may be necessary to fix the centres for the first floor; when carried so far up, the outside walls shall be reduced to 2 ft. in thickness, leaving a recess outside of 1 ft., and inside of 6 in.; and, when carried so far up, the inside foundation walls shall also be reduced, 6 in. on each side, to the thickness of 2 ft.; centres shall then be fixed on the various recesses of 6 in. throughout, left for the purpose, the proper arches shall be turned, and the first floor laid; the outside and the inside walls shall then be carried up of the thickness of 2 ft. throughout, as high as may be necessary to begin the recess intended to fix the centres for the second floor, that is, the floor for the four rooms, each not less than 50 ft. square in the clear, and for the landing in the north, and the landing in the south, of the building, where the stairs are to go up; at this stage of the work, a chain, composed of bars of inch-square iron, each bar about 10 ft. long, and linked together by hooks formed of the ends of the bars, shall be laid straightly and horizontally along the several walls, and shall be as tightly as possible worked into the centre of them throughout, and shall be secured wherever necessary, especially at all the angles, by iron clamps solidly fastened, so as to prevent cracking or swerving in any part; centres shall then be laid, the proper arches turned for the second floor and landings, and the second floor and landings shall be laid; the outside and the inside walls shall then be carried up of the same thickness of 2 ft. throughout, as high as may be necessary to begin in the recess intended to fix the centres for the third floor and landings, and, when so far carried up, another chain, similar in all respects to that used at the second story, shall be in like manner worked into the walls throughout, as tightly as possible, and clamped in the same way with equal care; centres shall be formed, the proper arches turned, and the third floor and landings shall be laid; the outside and the inside walls shall then be carried up, of the same thickness of 2 ft. throughout, as high as may be necessary to begin the recess intended to fix the centres for the roof; and, when so carried up, a third chain, in all respects like those used at the second and third stories, shall, in the manner before described, be worked as tightly as possible into the walls throughout, and shall be clamped with equal care; centres shall now be fixed in the manner best adapted for the roof, which is to form the ceiling for the third story, the proper arches shall be turned, and the roof shall be laid as nearly horizontally as may be, consistently with the easy passage of water to the eaves; the outside walls, still of the thickness of 2 ft. throughout, shall then be carried up about 2 ft. above the level of the platform, and shall have marble capping, with a strong and neat iron railing thereon. The outside walls shall be faced with slabs or blocks of marble or granite, not less than 2 ft. thick, and fastened together with clamps securely sunk therein; they shall be carried up flush from the recess of 1 ft. formed at the first floor, where the foundation outside wall is reduced to 2 ft. The floors and landings, as well as the roof, shall be covered with marble slabs, securely laid in mortar; the slabs on the roof to be twice as thick as those on the floors. In constructing the walls, as well as in turning

the arches, and laying the floors, landings, and roof, good and strong mortar and grout shall be used, so that no cavity whatever may any where remain. A furnace or furnaces for the generation of heated air shall be placed in the cellar, and the heated air shall be introduced in adequate quantity, wherever wanted, by means of pipes and flues inserted and made for the purpose in the walls, and as those walls shall be constructed."

After a number of other regulations respecting this college, which occupy five or six pages, Mr. Girard's next bequest is 500,000 dol. for paving and otherwise improving the city of Philadelphia; 300,000 dol. to the commonwealth of Pennsylvania; and the residue of his estate for various public purposes. The will is dated Feb. 16. 1830; and the last codicil, June 20. 1831.

The account of the proceedings of laying the corner stone of the Girard College, published in 1833, contains the following address, pronounced on that occasion by Nicholas Biddle, which well merits a place in this Magazine: —

"Fellow-Citizens, We have now witnessed the laying of the corner stone of the Girard College for Orphans. That stone, simple, massive, and enduring, fit emblem of the structure to be reared from it, and of the man whose name it bears, has been deposited in its final resting-place. The earth received it. To-morrow the earth will cover it. Ours are the last eyes which shall look upon it, and hereafter it will lie in its silent repose, unmoved by all the revolutions of the changing world above it.

"And yet from out that depth is to rise the spirit which may more influence the destiny of ourselves and our children, than all else the world now contains. The seed that has been planted is of the tree of knowledge, that growth which gives to existence all that renders it attractive, flowers for our early youth, fruits in maturer life, and shelter for declining years. It is that knowledge, which, trampling down in its progress the dominion of brutal force, and giving to intellect its just ascendency, has at length become the master power of the world. No people can now be distinguished, or prosperous, or truly great, but by the diffusion of knowledge; and, in the stirring competition of the roused spirits of our time, the first glory and the highest success must be assigned to the best educated nation. If this be true in our relations abroad, it is far more true at home. Our institutions have boldly ventured to place the whole power of the country in the hands of the whole people of the country, freed from all the great restraints, which, in other nations, were deemed necessary. In doing this, their reliance is entirely on the general intelligence and education of the community, without which, such institutions can have neither permanence nor value. Their brilliant success has hitherto justified that confidence; but, as our population becomes concentrated into denser masses, with more excited passions and keener wants, the corrective influence of instruction becomes daily more essential. The education, then, of the people, which elsewhere is desirable or useful, becomes with us essential to the enjoyment, as well as to the safety, of our institutions. Our general equality of rights would be unavailing without the intelligence to understand and to defend them; our general equality of power would be dangerous, if it enabled an ignorant mass to triumph by numerical force over the superior intelligence which it envied; our universal right to political distinction, unless the people are qualified for it by education, becomes a mere abstraction, exciting only an abortive ambition. While, therefore, to be uneducated and ignorant is in other countries a private misfortune, in ours it is a public wrong; and the great object to which statesmen should direct their efforts is, to elevate the

standard of public instruction to the level, the high table land, of our institutions. It is thus that this day has been appropriately chosen for the present solemnity.

"It is fit that, on the anniversary of that day when our ancestors laid the broad foundations of our public liberties, on that day when our countrymen, throughout this prosperous empire, are enjoying the blessings which these institutions confer, we, in our sphere of duty, should commence this great work, so eminently adapted to secure and perpetuate them. This truth no man felt with a deeper conviction than our distinguished fellow-citizen, whose history, and whose design in founding this institution, may aptly occupy, for a few moments, our attention. Of these, now that the tomb has dissipated all the illusions which once surrounded them, we can speak with the impartiality of history; and here, on this chosen spot, the scene of his future fame, we may freely bestow on his memory the homage which his unassuming nature would have shunned while living. We all remember, and most of us knew him. Plain in appearance, simple in manners, frugal in all his habits, his long life was one unbroken succession of intense and untiring industry. Wealthy, yet without indulging in the ordinary luxuries which wealth may procure; a stranger to the social circle, indifferent to political distinction, with no apparent enjoyment, except in impelling and regulating the multiplied occupations of which he was the centre, whose very relaxation was only variety of labour; he passed from youth to manhood, and finally to extreme old age, the same unchanged, unvarying model of judicious and successful enterprise. At length men began to gaze with wonder on this mysterious being, who, without any of the ordinary stimulants to exertion, urged by neither his own wants, nor the wants of others, with riches already beyond the hopes of avarice, yet persevered in this unceasing scheme of accumulation; and, possessing so much, strove to possess more, as anxiously as if he possessed nothing. They did not know that, under this cold exterior, and aloof in that stern solitude of his mind, with all that seeming indifference to the world and to the world's opinions, he still felt the deepest sympathy for human affliction, and nursed a stronger, yet a far nobler and wiser, ambition to benefit mankind, than ever animated the most devoted follower of that world's applause. His death first revealed all that this accumulation of his laborious and prolonged existence was to be the inheritance of us and of our children; that, for our and their comfort, the city of his adoption was to be improved and embellished, and, above all, that to their advancement in science and in morals were to be dedicated the fruits of his long years of toil.

"It required the self-denial of no common mind, to resist the temptation of being himself the witness and the administrator of this bounty, and to have abstained from enjoying the applause of his grateful countrymen, who would have acknowledged with affectionate respect the benefits which they derived from him. Yet even this secret and prospective munificence must have had its charm for a mind like his; and we may well imagine that the deep and retired stillness of his spirit was often soothed with the visions of the lasting good, and perhaps, too, of the posthumous glory, which he was preparing. Such contemplations he might well indulge, for to few have they been so fully realised. From the moment that foundation-stone touched the earth, the name of Girard was beyond the reach of oblivion. He has now taken his rank among the great benefactors of mankind. From this hour, that name is destined to survive to the latest posterity; and, while letters and the arts exist, he will be cited, as the man who, with a generous spirit, and a sagacious foresight, bequeathed, for the improvement of his fellow-men, the accumulated earnings of his life. He will be remembered in all future times by the emphatic title with which he chose to be designated, and with which he commences his will; a title by which we ourselves may proudly recognise him, as 'Stephen Girard, of the city of Philadelphia, in the commonwealth of Pennsylvania, merchant and mariner;' the author of a more munificent act of enlightened charity than was ever performed by any other human being.

"His will indeed be the most durable basis of all human distinction, a wise benevolence in the cause of letters. The ordinary charity, which feeds or clothes the distressed, estimable as it is, relieves only the physical wants of the sufferer. But the enlightened beneficence, which looks deeper into the wants of our nature; which not merely prolongs existence, but renders that existence a blessing, by pouring into these recesses of sorrow the radiance of moral and intellectual cultivation; this it is which forms the world's truest benefactor, and confers the most enduring of all glory; a glory the more secure, because the very objects of that benevolence are enabled to repay with fame the kindness which sustains them.

"It is not unreasonable to conjecture that, in all future times, there will probably be in existence many thousand men who will owe to Girard the greatest of all blessings, a virtuous education; men who will have been rescued from want, and perhaps from vice, and armed with power to rise to wealth and distinction. Among them will be found some of our best-educated citizens, accomplished scholars, intelligent mechanics, distinguished artists, and prominent statesmen. In the midst of their prosperity, such men can never forget the source of it, nor will they ever cease to mingle with their prayers, and to commemorate with their labours, the name of their great benefactor. What human being can be insensible to the happiness of having caused such a succession of good through remote ages, or not feel that such applause is more grateful than all the shouts which ever rose from the bloodiest field of battle, and worth all the vulgar fame of a hundred conquests!

"The general design, and the resources, of the institution are proportioned to its purposes, and characteristic of him who did nothing which he did not do well. After the building shall have been completed, there will remain the annual income of two millions of dollars, now yielding one hundred and two thousand dollars; and, if these funds should be inadequate for all the orphans applying for admission, the income of nearly all the remainder of the estate is to be appropriated to the erection of as many new buildings as his square in the city would have contained. So that, in general, it may be stated with reasonable confidence, that, when all the buildings are ready for the reception of the pupils, there will be available for the maintenance of the institution an income of not less than one hundred thousand dollars, which may be increased to at least two hundred and twenty thousand dollars. These ample funds are to be devoted to the maintenance and education of 'poor male white orphan children.' Of all the classes of human indigence, there are none more helpless, and none more entitled to our sympathies, than these children of misfortune. They have lost their natural protectors. The arms which have hitherto embraced and sustained them have been folded in death. They began life in comfort, perhaps in affluence; but now they stand alone, abandoned, and helpless, to struggle against the world's coldness, with precarious means of subsistence, with no prospect of instruction, and treading on that narrow and slippery verge which too often separates want from crime. From this friendless condition they are rescued by the benevolence of Girard, who not merely provides the means of subsistence, but, redressing the wrongs of fortune, raises them at once in the scale of being, and qualifies them to be useful members of that society which they would otherwise disturb or corrupt.

"How wide the limits of that benevolence may be, it is impossible to conjecture. If the imperfection of language suggests a doubt as to the degree of destitution which makes an 'orphan,' the greater weakness of our nature forces upon us the melancholy enquiry, What child is there who may not be a poor orphan? Who is there, indeed, among us whose children may not yet need the blessings of this institution? Let none of us, in the confidence of prosperity, deem his own offspring secure. Alas! all our prosperity is so vain and shadowy, and misfortune is so constantly in ambush to assail us, that it were presumptuous in any of us to suppose himself beyond the reach of vicissitudes, which would render such an institution the happiest refuge for his children. Yes, fellow-citizens, this college is our own, the property of us

all. It is intended to remedy misfortunes to which we are all equally liable. And it should be a source of great consolation to each of us, that if, in the ever-varying turns of human life, misfortune should overtake, and death surprise us, they who bear our names, and are destined to be the fathers of our descendants, will here find a home where they may be prepared for future usefulness, and become in turn the protectors and support of their more helpless relatives.

"Hereafter, thanks to the bounty of Girard, every father among us may, on his death-bed, enjoy the reflection, that, although unprovided with fortune, there is secured to his sons that which is at once the means of fortune, and far better than the amplest fortune without it, a good education. This consideration, if any such incentive were wanting, may serve to stimulate the sense of public duty in those who administer the institution, to render it worthy of their own children. For this purpose, happily, it is only necessary to fulfil the design of the founder, which provides ample means, and expressly enjoins the employment of them, to give every kind of liberal and useful instruction.

"They would much err, who, comparing this institution with any ordinary standard, regard it as an almshouse, or a poorhouse, in which a certain number of pauper boys, housed together, to be kept from harm, are to receive some hasty rudiments of instruction, and then to be thrust out on the world to make way for a similar swarm of unfortunate children. By no means. The comprehensive benevolence of Girard looked to higher and better things. It is not a poor school, nor a charity school, nor a free school, in their ordinary acceptation. It is, as he denominates it, a 'college.' The peremptory prohibition, that 'no distinctive dress should ever be worn,' reveals his purpose that these youths shall not be designated as objects of remark or contempt by their contemporaries; that they shall be distinguished only by their conduct, and shall not wear the livery even of charity. The instruction, too, required, is of the highest character, embracing almost every thing worthy of being studied in the circle of human knowledge. 'They shall be instructed,' says he, 'in the various branches of a sound education; comprehending reading, writing, grammar, arithmetic, geography, navigation, surveying, practical mathematics, astronomy, natural, chemical, and experimental philosophy, the French and Spanish languages (I do not forbid, but I do not recommend the Greek and Latin languages), and such other learning and science as the capacities of the several scholars may merit or warrant.' This excludes nothing; nay, it embraces every thing necessary to form a well-educated man. How far this instruction is to be carried; whether, when the degrees of talent and disposition come to be analysed, some are to be instructed up to the point of their appropriate capacity, while the more intelligent and more diligent are to be carried into the higher regions of science; are questions of future administrations, to be decided by experience. But it is manifest that all the means of education, thorough, perfect education, are to be provided; that every facility for the acquisition of knowledge should be at hand; nor is there any reason why the Girard College, liberally endowed beyond all example, should not be superior to any existing establishment in the talents of its professors, or the abundance of its means of instruction; and, with the blessing of God, so it shall be. There shall be collected within these walls all that the knowledge and research of men have accumulated to enlighten and improve the minds of youth. It will be the civil West Point of this country, where all the sciences which minister to men's happiness, and all the arts of peace, may be thoroughly and practically taught. Its success will naturally render it the model for other institutions; the centre of all improvement in things taught, no less than in the art teaching them; the nursery of instructors as well as pupils; thus not merely accomplishing the direct benefit of those to whom its instruction extends, but irradiating by its example the whole circumference of human knowledge.

"To this intellectual cultivation will be added that, without which all instruction is valueless, and all learning the mere ability for evil, that moral discipline which makes men virtuous and happy at their own firesides. 'My

desire is,' says he, 'that all the instructors and teachers in the college shall take pains to instil into the minds of the scholars the pure principles of morality, so that, on their entrance into active life, they may, from inclination and habit, evince benevolence towards their fellow-creatures, and a love of truth, sobriety, and industry.' When this harmony between the heart and the understanding ceases, mere knowledge is a curse, and men become intellectual statues, with the perfect forms of manly exterior, but cold and selfish, and worthless to the community which endures them. Our youth, too, will not fail to be deeply imbued with that enthusiastic devotion to republican government, and that knowledge of his public rights and duties, which should form the basis of the American character. It is thus that the founder strictly enjoins 'that, by every proper means, a pure attachment to our republican institutions, and to the sacred rights of conscience, as guaranteed by our happy constitution, shall be formed and fostered in the minds of the scholars.'

"Nor need there be any dread that such an education will disqualify them for their pursuits in after-life. In this country all pursuits are open to all men, nor should the humblest citizen despair of the highest honours of the republic. They err who suppose that, because men are instructed, they may desert the ordinary walks of employment. There never can be such an over-education of the mass of the people. Men labour not for want of knowledge, but for want of bread. The cultivation of the mind, like the cultivation of the soil, only renders it more productive; and knowledge becomes the best auxiliary to industry, by rendering the labourer more intelligent and more ambitious to excel. The youths thus instructed will go forth into the various pursuits of life, many of which are in their nature mechanical; but they will begin with the disposition and the power not merely to excel in them, but to rise beyond them; and they will emerge from their workshops, as their countrymen, Franklin, and Rittenhouse, and Godfrey, and Fulton, did before them, reaching all the distinctions of the state which may be honourably won by talents and character.

"That the scene of so many blessings may be appropriate to them, it is intended to make this structure worthy of its great object; worthy of the name of its founder, and of the city which he was so anxious to embellish. Among the sciences most needed in this country, where individual wealth is hastening to indulge its taste, and where every state, and city, and county, requires extensive public buildings, is architecture. Indispensable in the rudest forms of life, it becomes the highest ornament of the most enlightened. In every stage of its progress, the style of its public works displays the character of the nation which rears them. Disproportioned and grotesque among a coarse and unlettered people, in nations more advanced, often over-ornamented with the gaudy profusion and the caprices of tasteless wealth, it is only when sustained by the public spirit of a community at once enlightened and generous, that architecture attains its highest glory, a refined simplicity. Of that perfection it is proposed that this structure shall present a model, the equal at least of similar works in any other country, and not unworthy of the best days of antiquity; a structure which will at once gratify the honourable pride of every citizen of the United States, and form the best study for all the branches of industry connected with architecture. The enjoyment of so many advantages devolves on us, fellow-citizens, the duty of great care and vigilance to preserve them. After bestowing upon our city this rich inheritance, Girard adds this emphatic declaration: — 'In relation to the organisation of the college and its appendages, I leave, necessarily, many details to the mayor, aldermen, and citizens of Philadelphia; and I do so with the more confidence, as, from the nature of my bequests, and the benefit to result from them, I trust that my fellow-citizens of Philadelphia will observe and evince special care and anxiety in selecting members for their city councils, and other agents.'

"That the generous confidence with which he has thus committed to us the execution of his great designs should never be betrayed, we owe equally to the name of the founder, and to the interests of our posterity; as the whole value of this institution will depend entirely on the administration of it. For

myself and my colleagues, to whom the high honour has been assigned of sharing in that administration, I can only say, fellow-citizens, that we have assumed the trust with the deepest sense of its responsibility, and a determination to execute it in the spirit of enlightened benevolence which animated the founder; and we shall in our turn retire from it, with the hope that our fair city may always find successors, who, to equal zeal, add greater ability to serve it. Under such auspices, we confidently trust that all the expectations of the founder will be realised. With this delightful anticipation, we now invoke the blessing of God on this great undertaking.

"In the name of Stephen Girard, of the city of Philadelphia, in the commonwealth of Pennsylvania, merchant and mariner, we lay the foundation of this Girard College for Orphans. We dedicate it to the cause of charity, which not only feeds and clothes the destitute, but wisely confers the greatest blessings on the greatest sufferers; to the cause of education, which gives to human life its chief value; to the cause of morals, without which knowledge were worse than unavailing; and, finally, to the cause of our country, whose service is the noblest object to which knowledge and morals can be devoted.

"Long may this structure stand, in its majestic simplicity, the pride and admiration of our latest posterity; long may it continue to yield its annual harvests of educated and moral citizens, to adorn and to defend our country. Long may each successive age enjoy its still increasing benefits, when time shall have filled its halls with the memory of the mighty dead who have been reared within them, and shed over its outward beauty the mellowing hues of a thousand years of renown."

"*Description of the main Building of the Girard College for Orphans. Thomas U. Walter, Architect.*

"The Girard College is situated about one mile and a half north-west of the centre of the city, on a tract of land containing forty-five acres; the whole of which was appropriated by Mr. Girard exclusively to the purposes of the institution.

"The main building, which is the subject of this description, is composed in the Corinthian order of Grecian architecture: it covers a space of 184 ft. by 243 ft., and consists of an octastyle peripteral superstructure, resting upon a basement of 8 ft. in height, composed entirely of steps extending around the whole edifice; by which a pyramidal appearance is given to the substruction, and a means of approach to the porticoes afforded from every side. The dimensions of the stylobate (or platform on which the columns stand) are, 159 ft. on the fronts, by 217 ft. on the flanks; and the cell, or body of the building, measures 111 ft. by 169 ft. 2 in. The whole height, from the ground to the apex of the roof, is 100 ft.

"The columns are thirty-four in number; the diameter of the shaft at the top of the base is 6 ft., and at the bottom of the capital 5 ft.; the height of the capital is 8 ft. 6 in., and its width, from the extreme corners of the abacus, 9 ft.; the whole height of the column, including capital and base, is 55 ft. The entablature is 16 ft. 3 in. high, and the greatest projection of the cornice, from the face of the frieze, is 4 ft. 9 in.; the elevation of the pediment is 20 ft. 5 in., being one ninth of the span. The capitals of the columns are proportioned from those of the monument of Lysicrates at Athens: they are divided in height into four courses; the first embraces the water leaf, and consists of a single stone of 17 in. in thickness; the second course is also composed of a single stone, the height of which is 2 ft. 10 in. (the annular row of acanthus leaves occupies the whole of this course); the third division of the capital embraces the volutes and cauliculi (this course, which is likewise 2 ft. 10 in. in height, is composed of two pieces, having the vertical joint between the cauliculi on two opposite faces); the fourth, or upper, course, being the abacus, is 1 ft. 5 in. in height. The ceiling of the portico will be formed by beams resting on the tenia, and extending from the cell of the building

to the colonnade opposite to each column; the spaces between the beams will be filled in with rich lacunaria. The corners of the building are finished with massive antæ, having bases and capitals composed upon the principles of Grecian architecture. The flanks of the cell are pierced with windows, which are ornamented with the Greek antæ, surmounted with architraves and cornices. The doors of entrance are in the centre of the north and south fronts: they are each 16 ft. wide in the clear, by 32 ft high; their outside finish consists of antepagmenta of 2 ft. 7 in. wide, the supercilium of which is surmounted with a frieze and cornice; the cornice is supported by rich consoles, of 6½ ft. in height, and the cymatium is ornamented with sculptured honeysuckles. The exterior of the whole structure will be composed of fine white marble, slightly tinted with blue. The vestibules, which are approached by means of the doors at each end of the building, are ornamented with marble antæ, columns, and entablature, of the Greek Ionic order, which support a vaulted ceiling, consisting of elliptical groin arches, enriched with frets, guilloches, and lacunaria; the columns, which are sixteen in number, will each be composed of a single piece of marble; the proportions of the order are from the temple on the Illusus at Athens. The lobbies in the second story are directly over the vestibules, and occupy the same space. The columns in in this story, which are also sixteen in number, will be composed in the simplest form of Corinthian or foliated architecture, proportioned from those of the tower of Andronicus Cyrrhestes at Athens; the entablature will be surmounted with groin arches, similar to those in the vestibules, the soffits of which will be enriched with lacunaria. The stairways will always be composed of marble; they will be constructed in the four corners of the building, each occupying a space of 22 ft. by 26 ft., extending the whole height of the edifice; these openings will each be crowned with a pendentive parabolic dome, surmounted with a skylight of 10 ft. in diameter; the height of the skylight from the floor will be 80 ft.

"The building is three stories in height; each of which is 25 ft., from floor to floor: there are four rooms of 50 ft. square in each story. Those of the first and second stories are vaulted with groin arches; and those of the third story, with domes supported on pendentives, which spring from the corners of the rooms at the floor, and assume the form of a circle on the horizontal section, at the height of 19 ft. These rooms are lighted by means of skylights of 16 ft. in diameter. All the domes are terminated below the plane of the roof; and the skylights are designed to project but 1 ft. above it, so as not to interfere with the character of the architecture. The whole building will be warmed by means of furnaces, placed in the cellar; and every apartment will be ventilated upon philosophical principles."

Since the building was commenced, five annual reports respecting its progress have been made to the Building Committee, by the architect, Mr. Walter (who is now, Sept. 1838, in Italy, studying the marble roofs there). Some of these reports contain very interesting statements respecting the contraction and expansion of materials; and, as they show, besides, the regular business-like habits of the Americans, and the nicety and accuracy of their calculations, they will form the subject of a separate article in a future Number. — *Cond.*

Art. IV. *A House for an Invalid.* By T. K.

This house, the plans of which are shown in *figs.* 168. and 170., was designed by an invalid architect (who is so infirm as not to be able either to stand or walk), for his own occupation.

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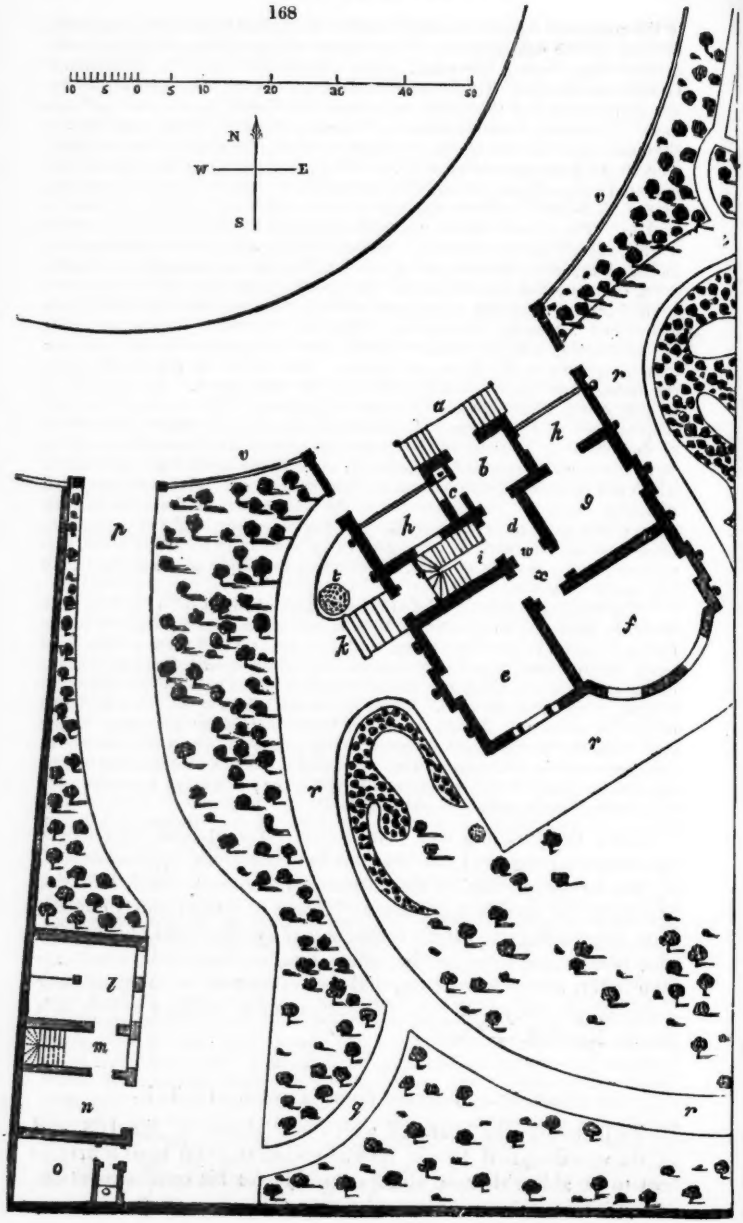
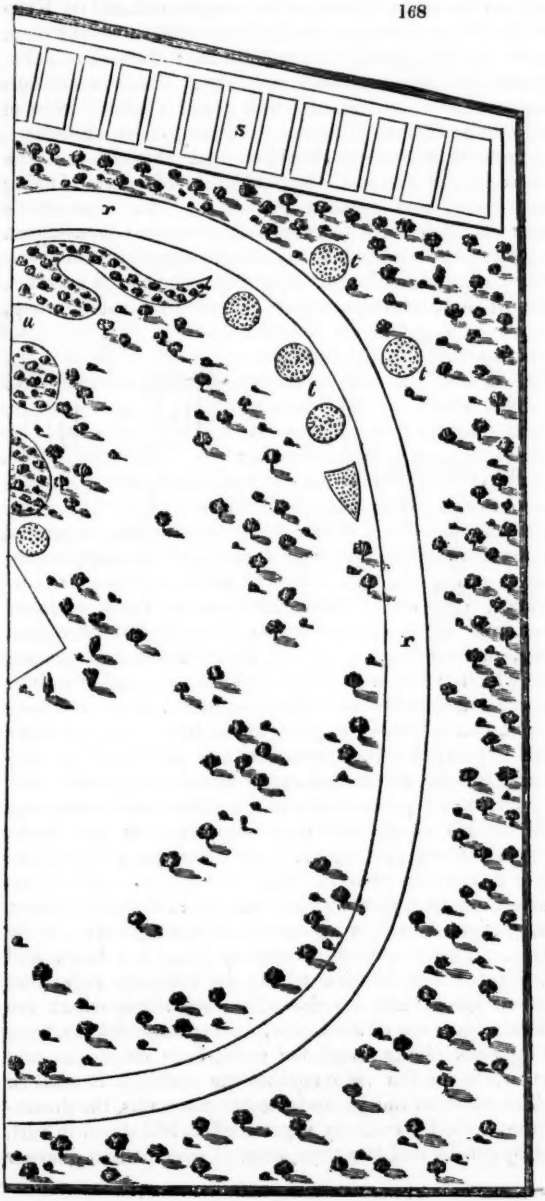


168



It was built in the year 1837, in the neighbourhood of Kensington, on the piece of ground of which *fig.* 168. shows the plan.

The surface of the ground is perfectly flat; the soil is a free loam on gravel, and the situation is very airy. There is a distant and extensive view of the Surrey hills; and a nearer view of Brompton, Sloane Street, Chelsea (old and new churches), Battersea, and Wandsworth churches and chapels, and the turret and cupola of Chelsea Hospital; the foreground being fields and nursery and garden grounds. The situation is within a mile of Hyde Park Corner, and quite near Kensington and Kensington Gardens, and is exceedingly convenient.

The ground plan of the house, in *fig.* 168., shows the entrance (*a*) by a double flight of steps, which ascends to a level landing, with an open iron gate (*fig.* 169. *m.*), which opens inwardly, to admit a person to be wheeled into the house directly from a carriage, which can be driven up close to the landing for that purpose. By means of this landing, therefore, the easiest possible mode is provided for an invalid either getting into his carriage or out of it. The lobby is shown at *b* in *fig.* 168., from which there is a water-closet at *c*; *d* is a hall or landing, separated from the stairs and the lobby by close doors; *e* is the dining-room; *f*, the library; *g*, the parlour; *h h*, sunk areas, with steps to servants' entrance, from which there are vaults for coals, servants' water-closet, and other conveniences; *i*, small closet, for great coats, clogs, and umbrellas, &c.; *k*, flight of steps to garden, underneath which there is a water-tank; *l*, two-stalled stable; *m*, harness-room and staircase to the coachman's room and hay-loft above; *n*, coach-house; *o*, yard for stable dung and other refuse, with a privy for the coachman and gardener; *p*, carriage entrance to the stable and coach-house; *q*, private walk to ditto; *r r r*, broad gravel walk, along which the invalid can be wheeled on his chair, and may thus perform the circuit of his garden without turning; *s*, beds of culinary herbs and small fruits; *t*, circular beds of small flowers; *u*, beds of artistical shapes, containing peat-earth shrubs and roses; and *v*, a stone kerb, surmounted by an open iron railing, with a holly hedge within. The rest of the boundary fence is a brick wall 8 ft. high, planted, on the side where the culinary vegetables are, with fruit trees; and on the other two sides, which are fully exposed to the view of the house, with ornamental climbers, and other ligneous plants suited for walls, both deciduous and evergreen; while on the side against the stable it is planted with ivy. The whole of the ground, except the walks, the flower-beds, and the beds for culinary vegetables, is laid down in turf, and varied by shrubs and low trees, none of which attain a larger

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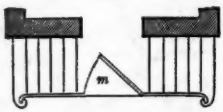

size than the laburnum. On each side of the carriage road (*p*) the trees are thicker, and consist chiefly of hollies, evergreen oaks, box, and other evergreens. There are no trees against the walls of the house, because the intended occupier is of opinion "that, however beautiful they may be in point of appearance, they are most destructive to buildings, by harbouring damp, and by the continual use of nails in training and fastening them." [The latter injury may be avoided by trellising the walls; and the former, by planting such evergreens as the common ivy, than which there is not a more effective preservative of a wall against external damp.]

In the plan of the first floor (*fig.* 170.), *a* is the situation of a door which completely shuts out the whole of the wind, which might otherwise come up the staircase from the ground floor, from the gallery (*b*), bed-room (*c*), drawingroom (*d*), and morning-room (*e*); *f* is a door on the staircase leading to the attic, which shuts out all wind that might come down from the attic floor; *g* and *h* are doors which are only opened by servants occasionally; *i* is a coloured glass folding door, which, while it admits the light from the window *k*, prevents the awkward appearance which the window would otherwise have, from not being opposite the centre of the gallery; *l* is a door to a closet which is under the attic stairs.

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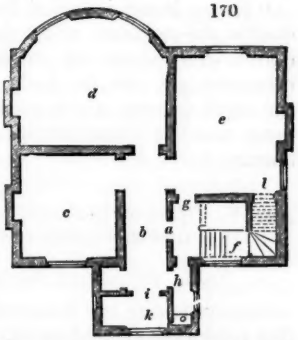


Remarks. The following are by the author of the plan:—"The comfort and convenience of the inside of this house have been considered without reference to the symmetry or appearance of the outside. The gable-end walls being carried up straight, allow of there being five good rooms in the attic floor; and the projecting eaves keep the roof dry. Under the whole of the basement floor, there is a layer of concrete 6 in. thick, on which is placed a layer of clean loose shingly gravel, the pavement being laid above. This loose gravel, besides being dry, prevents the possibility of rats, mice, or other vermin burrowing in it; and the concrete prevents all evaporation from the subsoil. The great objection to most London houses for an invalid is, that the staircase forms a kind of funnel, charged from top to bottom with cold air; the consequence of which is, that an invalid coming out of any of the rooms is almost sure to catch cold. This evil is effectually prevented in the plan *fig.* 170., by the doors *a* and *f*; and, in cases where an invalid could not ascend

even one flight of stairs, the same advantage might be obtained on the ground floor, by putting in a glass door at *w*, in *fig.* 168., which, with the three doors of the rooms, would make the lobby *x* an enclosed square. In this case the room *g* might be used as a bed-room.

"It will be seen from the plan that there may be free access to all the other parts of the house, without at all encroaching on the convenience and privity of the first floor; and, from what has been stated above, that the ground floor may be shut up in the same manner, leaving still a free communication between the basement floor and the attic. Should the house be several stories high, it will be evident the same plan may be applied to any of the floors.

"Every house intended for an invalid should have an inner door at the entrance, which should be kept closed till the street door is shut; which will prevent the rush of cold air which would otherwise get into the body of the house, and will admit only the small quantity which is contained in the space between the outer and the inner doors, and which gets in at each time of opening."

ART. V. *Hints on Construction: addressed to Architectural Students.* By GEORGE GODWIN, Jun., F.S.A. and M.I.A.

No. 5. BRICKS AND BRICKWORK. (*Continued from* p. 415.)

EVERY treatise on the art of building contains an assurance that brickwork carried up in *English bond* is stronger than that which is executed according to the *Flemish* mode. Every bricklayer who has had experience will say the same thing, if he be asked; and a careful examination for oneself of the two methods, which every one who would arrive at a sound conclusion is called upon to make, will confirm the fact. Now, in spite of all this, we still find the Flemish bond adopted in five out of six of the new buildings that are to be observed every day springing up around us with almost dangerous rapidity; and an enquirer would naturally seek for the cause of this singular disagreement between precept and practice. It is manifold and close at hand. Workmen have become accustomed to the latter mode: a good appearance can be produced with less trouble than when English bond is used; and, what is more important than all in the estimation of the speculator, it allows him to use inferior bricks (bricks which, by the mere operation of carting, have become broken into pieces); insomuch as bats may be as advantageously employed for it, so far as appearance goes, as whole bricks. We do not say but that Flemish bond might be more effective if better performed than it is: but we speak of it as it is usually executed; and we do not think that the facts we have mentioned, as the

causes of its general use, will be regarded in the same light by the architect, but rather as reasons against the adoption of it. True, the superior appearance which, from being accustomed to it, if from nothing else, the majority of persons believe the Flemish bond to present, may induce some of those who know its disadvantages to prefer it. Even in this case, however, the basement story of the building (in which place strength is important even in a greater degree than elsewhere) may be constructed in the other manner, being usually hidden from sight; and, when it is intended that the exterior of the house shall be covered with Roman cement, or other composition, the argument would, of course, wholly cease to have weight. For our own part, we are contented to believe what has been said many times, that as good a front may be made by using English bond, if proper care be taken, as by adopting the other; and, therefore, should unquestionably employ it, where the workmen could be depended on; knowing full well its superiority in regard to strength, and feeling assured that a short time would suffice to render it pleasing in the eyes of others. Every one must have observed the odd, sometimes absurd, effect produced in the minds of all by the first appearance of a hat or coat fashionable in a preceding age. Multiply the form, however; render it again generally worn, and it speedily becomes generally liked.

If custom insist upon retaining the appearance afforded by Flemish bond, a part of the evil may be avoided, it has been suggested, by using English bond withinside, and casing the outside, as it were, with Flemish bond. The weight of the greater quantity of timber in a building is usually upon the inside half of the walls; and the evil, therefore, may probably be lessened by this course, when the walls are thick enough to admit of it; and, by using more whole headers, in the place of bats, the danger of a separation might be prevented. The greatest care would be required, however, so to bond the whole together, that no division could possibly take place.

To enter here on an elaborate description of the two methods might be deemed uncalled for and tedious, and we shall therefore do little more than allude to them.

Flemish bond, as generally performed, implies the arrangement of headers and stretchers *alternately in the same course*, which said headers are, for the most part, merely bats; and thus a wall so constructed often consists of two separate leaves, if we may so speak, very slightly connected together; and the possibility of their separation or dislocation is obvious.

In English bond, on the contrary, each course consists alternately wholly of headers (or bricks laid in the direction of the thickness of the wall), and wholly of stretchers (or bricks laid

in the direction of the length of the wall), so that it is bonded together throughout equally, and cannot easily suffer any disruption, unless the bricks themselves be broken by the force exerted. We should recommend the student to obtain a score of bricks, or, better still, some small wooden models of bricks, half bricks, and quarter bricks, or closers, and essay for himself the different combinations which may be produced.

It would seem needless to say that the angles of a building require to be well bonded, and that the architect, or the clerk of the works, if there be one, should have a watchful eye in this respect. It cannot, however, be repeated too often; insomuch as workmen frequently fail to give that additional degree of care which, in order to make sound work, is there required; and unsightly settlements, even if nothing more serious occur, are the certain results. Pieces of thin iron hoop may be advantageously used in some situations, as an additional precaution. We may remark that, if it be intended to cover the exterior of the building with cement, the necessity for care to prevent settlements is not lessened, but increased; insomuch as the slightest disruption produces a crack, which is always strikingly visible, and which *cannot be repaired* without first cutting down a large portion of the cement work on each side of the fissure, and even then not always effectually.

Many walls, which externally appear to be well bonded together, are in reality defective, through want of proper bond in the horizontal, as well as the perpendicular, joints. In walls not less than two bricks and a half in thickness, especially for foundations, or where they are required to resist great thrust, it will be found a good precaution to introduce occasionally two courses, one over the other, of diagonal or herring-bone bond, which may be done without interfering with the appearance presented by the work externally. In the lower course of a two and a half brick wall, carried up in English bond, for example, there may be on the outside a line of stretchers; then a course of bricks placed diagonally, forming an angle of about 45°, and having the interstices filled up solid; and against them a line of headers, constituting the other face of the wall. In the upper course, the operation would be merely reversed: a line of headers would form the outside, and one of stretchers the inside, face; and the diagonal bricks would be placed in a contrary direction to the last. Even in a two-brick wall diagonal bond may be introduced; but then it must be in single courses only, between courses of ordinary English bond, as otherwise the face of the wall, not being tied in, would be liable to bulge.

We have said, when speaking of diagonal bond, that the interstices should be filled up solid. This should be done in all cases, never allowing the use of bats where whole bricks can be

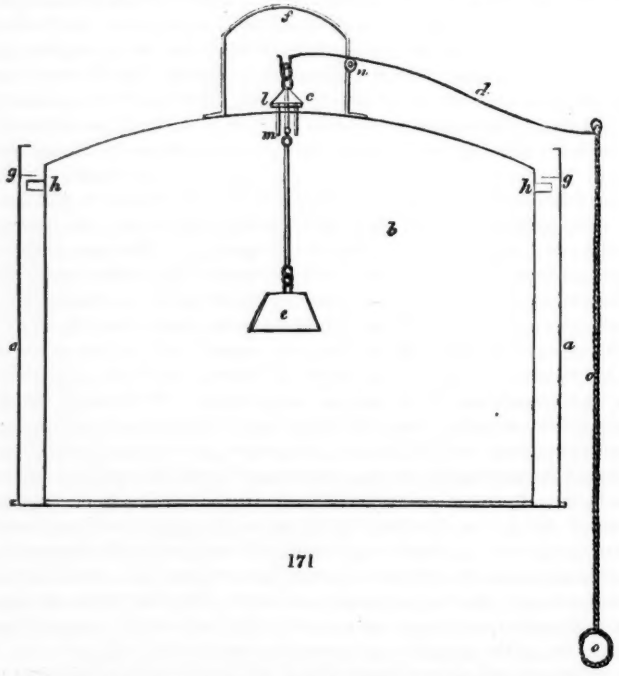
introduced; nor of mortar where *closers* (that is to say, half bats) will serve the purpose. Every crevice in the one course should then be filled with mortar or flushed up, and the whole made perfectly sound and level to receive the next. When brickwork is treated in this manner, provided the weather be not too dry, and the mortar good (on which head more elsewhere), no farther steps are necessary; but as, unfortunately, in the greater number of instances, it is *impossible* to insure the care thus required, the bricklayer's specification should in all cases contain a direction "to grout the work with hot lime and water every eight courses in height," which, *en passant*, we may suggest, does not mean, to slobber the face of the wall with the mixture (we know no better word), as some workmen seem to think it does, but to fill up every crevice left by the bricklayer in the interior of it, through carelessness. It likewise serves another useful office, as we think, which may be mentioned. Bricks are often used perfectly dry, and covered with dust, and sometimes even when heated by the sun; in consequence of any of which circumstances the mortar round about each brick is rapidly dried: it is not permitted to be absorbed into the substance of the brick, and sets quickly, without perfectly adhering to it. Indeed, even the imperfect adhesion which does take place is afterwards interfered with by the mere operations of the bricklayer in regard to the next courses; insomuch as mortar, once set, begins to indurate in the form taken, and this form cannot afterwards be changed without destroying the value of the mortar. The best mode of proceeding is, to soak each brick in lime-water before laying it; but, when this is not done, grouting, judiciously performed, may serve as a partial substitute, preventing the too immediate drying of the mortar, and inducing a more general and perfect union of the whole. When it is required that brickwork should dry quickly, grouting is, of course, inexpedient. This would be the case, for example, when building late in the season, and in fear of frost, when we should use the mortar quite hot, and much less fluid than ordinarily, so that the water might be quickly driven off; as otherwise it might become frozen, and, expanding, as water always does in freezing (being an exception to the general law in nature, that bodies are rendered smaller by the abstraction of heat), cause the mortar to crumble to dust. In such a case as this, we say, grouting should be omitted; but the whole of such a proceeding, although oftentimes expedient, would unquestionably entail the sacrifice of a certain degree of stability.

Pilasters, rusticated quoins, and other projections, whether to be covered with cement or not, should be arranged, as regards their width, so as to bring in whole or half bricks, and will then materially assist to strengthen the walls. The core for all proposed decorations in cement, such as cornices, string courses,

and sills (which latter, however, should in all cases be of stone if practicable), should be *built* with the walls, and not stuck on afterwards, or dubbed out, as it is termed, which is too commonly the case; and for this purpose, when the projection is large, cement should be used instead of mortar, to prevent accidents, notwithstanding that an overlaying course of stone may have been first bedded on the wall to receive the bricks.

ART. VI. *Description of a cheap portable Shower-Bath, invented by James Milne, Brass-Founder, Edinburgh.* Communicated by Mr. Milne.

FIG. 171. is a section of the bath, with its cistern, or outer case; and *fig.* 172. is a top view, showing the manner in which



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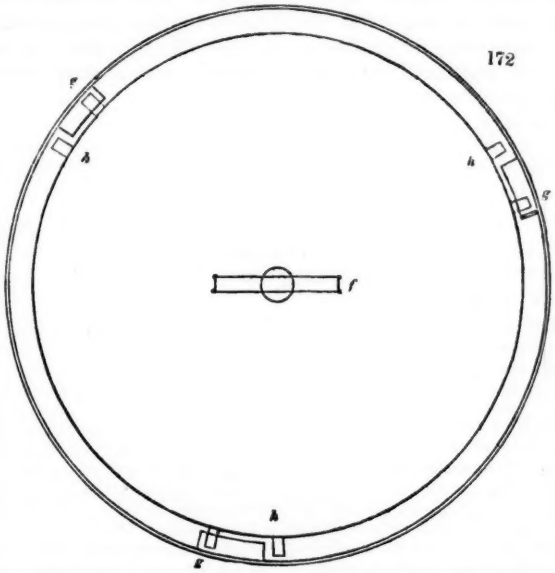
it is connected to its case, so as to be carried from one place to another; *a* is the cistern, or outer case, made about 1 in. larger in diameter, and 1 in. deeper, than *b*; *b* is the vessel to contain the water to produce the shower, having a bottom perforated

with fine holes, about $\frac{1}{30}$ of an inch in diameter, the top a little raised, having in the centre a tube (*m*) soldered into it; *c* is an air-tight valve, with a leather face (*l*), which the lead weight *e* pulls close, so as to exclude the pressure of the atmosphere; *f* is a bow, or handle, to carry or hang the bath by, having a slit at *n*, to allow the wire lever *d* to pass through. The lever (*d*) is connected to the valve (*c*) by a hook, and has its fulcrum at



n, on a wire pin soldered across the slit in *f*. By pulling the string *o*, and raising the valve, the pressure of the atmosphere is admitted to the surface of the water in *b*, allowing the water to escape in a shower from the bottom. The moment the string is let go, the water ceases to run. The shower may be continued as long as there is water in the vessel, by continuing hold of the string. *h h h* are three pins soldered to the vessel *b*, near the top; which pins slip under three plates, kneed down at one end to stop the pins, and soldered to the inside of the vessel *a*. When the pins are turned to the left, to the position of the dotted lines, the outer case is lifted along with the vessel *b*.

To use the Bath. — Fill the outer case with water, either cold or tepid, till within 1 in. of the top; then sink the bath into the water, pressing it down gently, keeping the valve open all the time, to allow the air to escape, till it reaches the bottom; then turn the bath a little round, as shown in *fig.* 172. by the

position of the pins, and carry it to the place it is to be used, and hang it from the roof by a hook, or raise it by a cord over a pulley; then turn the outer case to the right, to free the pins, and remove it from the vessel: the water will remain in the bath till air be admitted by the valve. By pulling the string, you can have a shower at pleasure, short or long, while there is water in the vessel. The bath may be made of any size, by any country tinsmith. A cock may be used instead of the valve, having a long lever attached to the key, with a balance at the opposite end to the string, of sufficient weight to overcome the friction of the cock, and keep it always shut; except when kept open by the string.

Edinburgh, July, 1838.

REVIEWS.

ART. I. *A Dictionary of Arts, Manufactures, and Mines; containing a clear Exposition of their Principles and Practice.* By Andrew Ure, M.D., &c. 8vo. To be completed in Ten monthly Parts, at *5s.* each. London, 1838.

"THE author has embodied in this work the results of his long experience as a professor of practical science. Since the year 1805, when he entered at an early age upon the arduous task of conducting the schools of chemistry and manufactures in the Andersonian University, up to the present day, he has been assiduously engaged in the study and improvement of most of the chemical, and many of the mechanical, arts. Consulted professionally by proprietors of factories, workshops, and mines of various descriptions, both in this country and abroad, concerning derangements in their operations, or defects in their products, he has enjoyed peculiar opportunities of becoming familiar with their minutest details, and has frequently had the good fortune to rectify what was amiss, or to supply what was wanting. Of the stores of information thus acquired he has availed himself on the present occasion; careful, meanwhile, to neglect no means of knowledge which his extensive intercourse with foreign nations affords."

Part I., consisting of 120 pages, carries on the alphabet as far as "Bismuth," and amply justifies the foregoing address. The articles in this part which chiefly interest the architect are: Alabaster, to which upwards of a page is devoted; Alloy, Alum, Anthracite, Antiseptics; Artesian Wells, including the mode of boring for water, with the different tools, &c., in use, an excellent article, illustrated by numerous cuts, and occupying 4½ pages; Automaton, a very curious article; Balance, very instructive; Baths, a valuable article, occupying 3 pages; and Beer, including plans and sections of an improved malt kiln; and also the plan, machinery, and utensils of a great brewery. Taking the work altogether, it may safely be pronounced the most valuable of the kind which has ever appeared, either in this country or on the Continent; in short, it is one which we do not believe could have been produced by any other person than Dr. Ure.

ART. II. *Sketch of the Civil Engineering of North America; comprising Remarks on the Harbours, River and Lake Navigation, Lighthouses, Steam Navigation, Water-Works, Canals, Roads, Railways, Bridges, and other Works in that Country.* By David Stevenson, Engineer. 8vo, pp. 320. London, 1838.

WE have perused this work with interest and pleasure; with interest, as showing not only the progress which the Americans are making in all the great features of territorial improvement, but as indicating the characteristic modes in which these great works are carried into effect. We see in America, more than in any country of Europe, the essential and the useful, entirely separated from the unnecessary and ornamental. The pleasure we have received has been chiefly from observing the total want of prejudice in the observations of Mr. Stevenson; a very rare quality in writers on America, whether these be general or professional observers.

In a three months' tour, Mr. Stevenson visited Upper and Lower Canada, and the most interesting parts of the United States. He saw many of the principal seaports, and navigable rivers, two of the great lakes, the principal canals, railroads, bridges, common roads, &c.; and the most remarkable of the works for supplying the cities with water. The steam navigation, and the system of lighthouses (the latter, one in which Mr. Stevenson has rendered his name celebrated), also came occasionally under his observation. In this extensive field, he saw a good deal that was entirely new to him; and hence his desire to lay his observations before his professional brethren: not so much to satisfy their curiosity, as to stimulate others to bestow a more thorough examination on the ground which he has gone over. "Judging," he says, "from the attention shown me by all classes of persons in America, and their readiness to communicate freely every kind of information, I feel certain that any such extended engineering tour would be attended with no less pleasure than interest."

The following passage may be considered as the essential result of Mr. Stevenson's tour: — "Civil engineering, as practised in America, is not always applicable to the circumstances of Europe; but still, the modifications to which it is subject in a new country may prove useful, by suggesting various methods of working, adapted to local circumstances, or limited funds." (p. ix.)

We pass over Chapter I. Harbours, II. Lake Navigation, III. River Navigation, and IV. Steam Navigation, to glance at V. Fuel and Materials. Anthracite coal is much used for domestic purposes in New York, Philadelphia, Baltimore, and Washington. It is burned sometimes in stoves, and sometimes in

the open fireplace. Brick is the building material for dwelling-houses in large towns, in most of which wooden structures are not now permitted to be erected. The public edifices are generally built of marble, which is found in great abundance in different parts of the country; the finest marble, however, is found in the neighbourhood of Philadelphia.

"The public buildings in Philadelphia, most of which were designed by Mr. Strickland, architect in that city, present by far the finest specimens of architectural design which are to be met with in the United States; and the extreme purity of the marble of which they are built adds greatly to their general effect. The new Girard College at Philadelphia, designed by Mr. Walter, architect, is at present in an advanced state of progress, and promises, when completed, to be a magnificent building. The marble of the United States is rather coarse in the grain, and not very suitable for forming the finely wrought capitals of columns; and the materials of those parts of all the pillars of the public buildings in Philadelphia were therefore brought from Italy.

"I visited some of the quarries in the neighbourhood of Philadelphia, in which the beds of marble dipped from north to south, at an inclination of 60° with the horizon. In one of them the quarriers were working a bed 14 ft. in thickness, at a depth of 120 ft. below the surface. The blocks of marble, some of which weighed 12 tons, are raised to the surface of the ground by means of a horse-gin. A thick layer of common limestone rests on the marble: this is blasted off with gunpowder, and burned for making mortar.

"Grey-coloured granite, of excellent quality, occurs at Quincy, in Massachusetts, and Singsing, on the Hudson. The only hydraulic works in which it has been used are the graving-docks at Boston and Norfolk; but it has also been used a good deal in New York for door-lintels and stairs, and latterly has been introduced for public buildings. The Astor Hotel, the jail, and some others, are formed of it.

"It is much to be regretted that there are no building materials in the neighbourhood of New York. On examining the ground laid open in some of the railway cuttings in the vicinity of the town, I found it to consist of a stratum of gravel from 10 ft. to 15 ft. in depth, with boulder-stones of granite, mica-slate, greenstone, and red sandstone; below this, mica-slate occurs, dipping from north to south, at an angle of 45°; but it is not fit for building purposes. This formation occurs on the island of Manhattan, on which the town of New York stands, and also on Long Island, which protects its harbour.

"The fine timber which the country produces is much employed in all the public works; and, while it serves in some degree to compensate for the want of stone, it also affords great advantages for ship-building and carpentry, which have been brought to high perfection in America."

Chapter VI. treats of Canals, and Chapter VII. on Roads. Road-making has been very little cultivated in America; and it was not until the introduction of railways that the Americans entertained the idea of transporting heavy goods by any other means than by canals or rivers. Their objection to paved or Macadamised roads is founded on the prejudicial effects on such roads of the severe and protracted winters, and also the expense of procuring suitable materials; stone, fit for road-making being rare in America. The public roads, therefore, are, in most parts of the Union, little better than mere tracts formed by levelling the surface.

"The roots of the felled trees are often not removed; and in marshes, where the ground is wet and soft, the trees themselves are cut in lengths of about 10 or 12 feet, and laid close to each other across the road, to prevent vehicles from sinking; forming what is called in America a "Corduroy road," over which the coach advances by a series of leaps and starts, particularly trying to those accustomed to the comforts of European travelling.

"Some interesting experiments have lately been set on foot at New York, for the purpose of obtaining a permanent and durable City Road, for streets over which there is a great thoroughfare. The place chosen for the trial was the Broadway, in which the traffic is constant and extensive.

"The specimen of road-making first put to the test was a species of causewaying or pitching; but the materials employed are round water-worn stones, of small size; and their only recommendation for such a work appears to be their great abundance in the neighbourhood of the town. The most of the streets in New York, and, indeed, in all the American towns, are paved with stones of this description; but, owing to their small size and round form, they easily yield to the pressure of carriages passing over them, and produce the large ruts and holes for which American thoroughfares are famed. To form a smooth and durable pavement, the pitching-stones should have a considerable depth, and their opposite sides ought to be as nearly parallel as possible, or, in other words, the stones should have very little taper. The footpaths, in most of the towns, are paved with bricks set on edge, and bedded in sand, similar to the "clinkers," or small hard-burned bricks, so generally used for road-making in Holland.

"The second specimen was formed with broken stones; but the materials, owing chiefly, no doubt, to the high rate of wages, are not broken sufficiently small to entitle it to the name of a "Macadamised road." It is, however, a wonderful improvement on the ordinary pitched pavement of the country; and the only objections to its general introduction, as already noticed, are the prejudicial effects produced on it by the very intense frost with which the country is visited, and the expense of keeping it in repair.

"The third specimen is rather of an original description. It consists of a species of tessellated pavement, formed of hexagonal billets of pine wood, measuring 6 in. on each side, and 12 in. in depth. From the manner in which the timber is arranged, the pressure falls on it parallel to the direction in which its fibres lie; so that the tendency to wear is very small. The blocks are coated with pitch or tar, and are set in sand, forming a smooth surface for carriages, which pass easily and noiselessly over it. There can be no doubt of the suitableness of wood for forming a roadway; and such an improvement is certainly much wanted in all American towns, and in none of them more than in New York. Some, however, have expressed a fear that great difficulty would be experienced in keeping pavements constructed in this manner in a clean state, and that, during damp weather, a vapour might arise from the timber, which, if it were brought into general use, would prove hurtful to the salubrity of large towns.

"In the northern parts of Germany, and also in Russia, wooden pavements are a good deal used. My friend Dr. D. B. Reid informs me that, at St. Petersburg, a wooden causeway has been tried with considerable success. The billets of wood are hexagonal, and are arranged in the manner of the American pavement. At first, they were simply embedded in the ground; but a great improvement has been introduced by placing them on a flooring of planks laid horizontally, so as to prevent them from sinking unequally. This has not, so far as I know, been done in America."

Chapter VIII. Bridges. These are, in general, constructed entirely of wood, and roofed in, like the wooden bridges of Switzerland and Germany. Plans and elevations are given of four different kinds. One of these, "Town's patent lattice bridge,"

reminds us of the model of a bridge made by a Russian peasant, intended to cross the Neva at Petersburg, by one arch, and which in, 1814, formed an ornament to the Taurida Gardens. This arch was formed of latticework, exactly like "Town's."

Chapter IX. Railways, is full of information, illustrated by numerous engravings; as is Chapter X. Water-works. Chapter XI. is on Lighthouses.

Chapter XII. House-moving, is curious; but it does not appear that much is gained by the process. A flooring of beams is introduced below the foundation of the house, and rests on three or more beams; these beams resting on others, on which they are slid along, impelled by powerful screw-jacks, and by greasing the surfaces of the beams that come in contact.

"In consequence of the great value of labour, the Americans adopt, with a view to economy, many mechanical expedients, which, in the eyes of British engineers, seem very extraordinary.

"Perhaps the most curious of these is the operation of moving houses, which is often practised in New York. Most of the old streets in that town are very narrow and tortuous; and, in the course of improving them, many of the old houses were found to interfere with the new lines of street; but, instead of taking down and rebuilding those tenements, the ingenious inhabitants have recourse to the more simple method of moving the whole, *en masse*, to a new site. This was, at first, only attempted with houses formed of wooden framework, but now the same liberty is taken with those built of brick. I saw the operation put in practice on a brick house, at No. 130. Chatham Street, New York, and was so much interested in the success of this hazardous process, that I delayed my departure from New York for three days, in order to see it completed. The house measured 50 ft. in depth, by 25 ft. in breadth of front, and consisted of four stories, two above the ground floor, and a garret story at the top, the whole being surmounted by large chimney stacks. This house, in order to make room for a new line of street, was moved back 14 ft. 6 in. from the line which the front wall of the house originally occupied; and as the operation was curious, and exceedingly interesting in a engineering point of view, I shall endeavour to describe the manner in which it was accomplished."

After describing the operation, Mr. Stevenson proceeds: —

"The operation is attended with very great risk, and much caution is necessary to prevent accidents. Its success depends chiefly upon getting a solid and unyielding base for supporting the screw-jacks, and for the prolongation of the beam to the new site which the house is to occupy. It is further of the utmost importance that, in working the screws, their motion should be simultaneous, which, in a range of 40 or 50 screw-jacks, is not very easily attained. The operation of drifting the holes through the walls also requires caution, as well as that of removing the intermediate pieces between those of the beams, which pass through both walls. The space between the beams is only 2 ft., and the place of the materials removed is, if necessary, supplied, while the house is in the act of moving, by a block of wood which rests on the beams. The screw-jacks, by which the motion is produced, require also to be worked with the greatest caution, as the cracking of the walls would be the inevitable consequence of their advancing unequally.

"Notwithstanding the great difficulty attending the successful performance of this operation, it is practised in New York without creating the least alarm in the inhabitants of the houses, who, in some cases, do not even remove their furniture while the process is going forward. The lower part of the house which I saw moved was occupied as a carver and gilder's shop; and, on Mr.

Brown, under whose directions the operation was proceeding, conducting me to the upper story, that he might convince me that there were no rents in the walls or ceilings of the rooms, I was astonished to find one of them filled with picture frames and plates of mirror glass, which had never been removed from the house. The value of the mirror glass, according to Mr. Brown, was not less than 1500 dollars, which is equal to about 300*l.* sterling; and so much confidence did the owner of the house place in the success and safety of the operation, that he did not take the trouble of removing his fragile property. I understood from Mr. Brown that the whole operation of removing this house, from the time of its commencement till its completion, would occupy about five weeks; but the time employed in actually moving the house 14½ ft. was seven hours. The sum for which he had contracted to complete the operation was 1000 dollars, which is equal to about 200*l.* sterling. Mr. Brown mentioned that he and his father, who was the first person who attempted to perform the operation, had followed the business of 'house-movers,' for fourteen years, and had removed upwards of 100 houses, without any accident, many of which, as in the case of the one I saw, were made entirely of brick. I also visited a church in 'Sixth' Street, capable, I should think, of holding from 600 to 1000 persons, with galleries and a spire, which was moved 1100 ft.; but this building was composed entirely of wood, which rendered the operation much less hazardous."

We intended to give a quotation from p. 196. to 199., on the subject of "canal travelling in many parts of America;" but for this very curious passage we refer the reader to the work itself; which, whether he be professional or non-professional, he will find well worthy of perusal.

ART. III. *An Historical Essay on Architecture.* By the late Thomas Hope. Illustrated from drawings made by him in Italy and Germany. Royal 8vo, 2d edition. London, 1835.

(*Continued from* p. 423.)

CHAP. XXXIV. *Examination of various Conjectures on the Subject of the Change from round to pointed Architecture, and of the Origin of the latter.* The author commences by giving the opinions of others on this subject; in which he passes in review the hypotheses of an avenue of trees, adopted by Warburton and others; of the oak woods, in which druids burned their human victims in osier baskets; of some of the posts, branches, and twigs interwoven together, of Sir James Hall; and of the stone edifices of the Gothic nations of the north; where, however, the oldest Scandinavian church known, that of St. Eric, at Upsal, built, in 1118, on the ruins of the most celebrated temple of Odin, was, he informs us, erected in "more Romano." Failing to find the origin of the pointed style in the North, recourse was had to the Saracenic mosques of the South. Dr. Milner's opinion, that the idea of the pointed arch was suggested by the intersections of circular arches, is rejected, and the author thus concludes: —

"Were I disposed to found a new theory on a mere superficial resemblance, I might trace the last and most luxuriant efflorescence of the Gothic style, not to the barbarians of the North, but to the most anciently civilised nation of the South, indeed of the terraqueous globe, to that nation to which we naturally look for every art and science of which we cannot discover a later and nearer origin, to the Hindoos. A few miles north of Sadras, on the Coromandel coast, at a place called Maralipuram, are the ruins of two pagodas, of such antiquity as to bear inscriptions which the Hindoos themselves cannot expound, surmounted by coverings composed of two segments of circles, forming a complete pointed arch: or, if I wished to trace my architectonic pedigree to a country more classic than our northern wilds, and yet somewhat less remote than the Indian plains, I might quote, on the now almost deserted coast of Lycia, the thousands of sepulchral monuments, of an era apparently preceding its conquest by the Romans, and bearing Greek inscriptions, which, in the outline of their lids or roofs, equally composed of two segments of circles, uniting in a point, bear a perfectly Gothic countenance; but, however curious both be, from the peculiarity of that form, neither the pagodas on the Coromandel coast, nor the sarcophagi on that of Caramania, seem to have the least essential and fundamental form connected with any modification of what we call Gothic architecture.

"Sir Christopher Wren, himself an architect, and thus seeing more deeply into the productions, at least, of his own art, attributed the change from the round to the pointed style, to a motive, which, if it was not more true and well founded, was at least more weighty, more consistent with the universality of the change, to the wish of rendering the construction of edifices very vast and lofty, less laborious, and less expensive.

"First, by enabling arches of different widths to receive an equal height.

"Secondly, by rendering a less unwieldy apparatus sufficient for arching, and enabling segments of the same circle to be employed for arches of different heights and widths, instead of requiring for each different diameter a different circle.

"Thirdly, by obviating the necessity of keystones.

"Fourthly, by causing stones so small to be required for the vaulting and superior parts, that a single man might carry each in a hod, on his back, up a ladder, to the highest point. But the purposes here set forth required not pointed arches, and the constructors of them did not even avail themselves of the advantages supposed to be afforded by them; for in Greek and Lombard buildings, and in round-headed arches of different diameters, the prolongation of the perpendicular part of the impost, before it was turned into a semicircle, equally brought to a level the summit of the arch. In the construction of gigantic pointed arches, a vast apparatus still was indispensable. In them we generally find keystones, as well as in those round; and though certainly the thin pillars, and slender ribs, and slight roofings of pointed edifices might, in general, require blocks of stone less large and less ponderous than any other style, they often demanded and displayed them very large. Witness the keystones of the vaulting of King's College Chapel, Cambridge. Certainly, where employed, they were hoisted up to a height unexampled in any other architecture. We may add, that the elaborate peculiarities of the new method seemed rather to be conceived for purposes of loftiness and of magnificence, than from motives of mere expediency, particularly where edifices, already finished in the rounded, were altered to the pointed, style."

Chap. xxxv. *The Author's Theory respecting the Invention and Adoption of pointed Architecture.* The extreme interest of this chapter, and the permission before alluded to of the son of the author, induce us to give it entire.

"To me it appears most probable that, in those regions where snow falls thick, and lies long, the necessity of affording to numerous congregations

places of assembly ample and spacious; temples which, consuming less solid materials, and presenting a lesser number, and a smaller bulk, of those masses of masonry which obstructed the vacant spaces, should yet be covered by a roof sharp and lofty, calculated easily to throw off the wet, yet to weigh lightly on those parts of the building which supported it, that the desire of obtaining these advantages, induced architects to resume the groined arch, known and used, as we have seen, by the heathen Romans, and in the first Christian basilicas, and subsequently discarded, in consequence of the facilities of construction afforded by the profusion of ancient columns which were at hand, and from the readiness with which a timber roof might supply the most urgent necessities; a mode of building which, in Lombard edifices, was again superseded by the heavy trunk-shaped vault.

"Together with the groined vault, they reverted to the use of the ribs and ridge bands of stone, which, forming a strong connected skeleton, enabled the interstices to be filled up with thinner integuments of lighter stuff; and adopted the method of composing the arches or ribs, carried along and across the nave and ailes at right angles with each other, and forming together the square; so that the two cross arches were framed of two sections of the same diagonal arch that separated the nave from the ailes, made to spring from the piers on which these diagonal arches rested; but, instead of being carried at right angles with the side arches, made to cross each other, in such a manner that the impost of each rested not on the pier or pillar immediately opposite to it, but upon the next adjoining to that.

"The natural consequence of this construction would be the formation of an arch pointed at the intersection of these two that were round. While the vault did not require much height, but rather lateral expanse, the arches thus crossing each other were made round, in order to give strength; but, when more elevation was required, and more scientific knowledge could be commanded, the groined vault, assisted by piers and buttresses, was gradually developed, and grew into the pointed arch. In process of time, a desire arose to give to the jambs and apertures destined for doors and windows, an appearance corresponding to their tall and slender dimensions, and to the shape of the pointed arch; and the modifications, which before had been but partially seen, grew into general favour and estimation.

"Struck by the combination of strength and lightness, loftiness and space, which this system afforded, artists began to follow up, from motives of elegance or vanity, that which had originated in causes of direct utility, and to make every support as slight and distant, every opening as high and wide, as possible.

"For the sake of richness and harmony, the ribs, and ridge bands, and other parts forming the skeleton of the roof, were multiplied into the most complicated, and elegant, and bold tracery; the openings of the windows, into the most subtle and variegated mullions and ramifications; and the solid surfaces of the walls were covered with the most weblike tabernacle work.

"The peculiar form acquired by the vault produced in it a tendency to divaricate and to push outwards the perpendicular internal supports; and the oblique pressure applied to the upper parts of these came to be counteracted from below by a resistance equally oblique; in other words, by carrying each of the leading arches of the vault, partly within and partly without the enclosing wall, in the shapes of buttresses detaching themselves from the main body of the building, thence called flying, by means of which these arches were continued in one uninterrupted curve from the summit of the edifice, to the remotest point of the foundation. The whole was completed by the application of those weights in the shape of pinnacles, which, by their vertical pressure, confined the diverging tendency of the arches, and reduced within bounds more limited the resting places of their outward supports.

"If this account of the views and motives whence arose the alterations from the Lombard to the pointed style, drawn from those peculiar internal as well as external characteristics, which essentially distinguish the latter from the former, prove true and correct, if only a difference of situation and

climate produced those remodifications from the Lombard, which form the essential characteristics of the pointed architecture, we must acknowledge that the latter was superstructed upon, and arose, not out of a few mere arbitrary and ornamental shapes of the former, such as the interlacing of rounded arches and corbels, but out of the most universal principles of the rounded or Lombard style themselves, inasmuch as the arch, the vault, the groin, those essential ingredients of later architecture, already existed in the Lombard, were taken from it, and only prove that the peculiar local exigencies of more northern climates generated those further changes of form and subdivisions of parts, more directly adapted to the necessities and tastes of the countries in which that style was recomposed. In confirmation of our argument, we may remember that the same bodies of freemasons, who had designed and executed the former sacred buildings in the Lombard character, continued, under the influence of different latitudes and increased experience and science, to conceive and erect the new fabrics, as required by the taste of the later era. In short, we must allow that the latest pointed style, though resembling the interlacings of a gossamer web, the crystallisation of the hoar-frost in its most developed filigree form, in the total absence of strong and continued walls, and broad architraves, and lines extended horizontally, and expanding forms; and, on the contrary, remarkable for perpendicular supports carried to a vast height and thinness, for immense windows, for wide and lofty vacant spaces in its arching, complicated in its high roofs and spires, broaches, and pinnacles, all sharp and spiky; as different as possible from the Greek in appearance; yet, through a number of intervening links of the earlier pointed, and rounded, and Byzantine, and ancient Roman styles, ultimately in a direct line and order of filiation, finds its origin in that ancient and primitive Greek architecture itself."

(*To be continued.*)

MISCELLANEOUS INTELLIGENCE.

ART. I. *Domestic Notices.*

ENGLAND.

BORRADAILE and Co.'s patent Felt for preventing the Transmission of Sound, &c. — What we call felt, there is every reason to suppose, is very much like, if not the same as, that which was known to the ancients under *lana coacta*. With them it served many useful purposes, such as cloaks for soldiers, corslets, and coverings for tents: by us, it is used chiefly for making hats; and, although this same wool may be woven into cloth, or into kersey, yet, as Shakspeare said, —

> " It were a delicate stratagem to shoe
> A troop of horse with felt."

Ducange, in his *Dictionary*, tells us, perhaps, as much about it as we should gather from any other goodly folio; and quotes a passage from Pliny, which imports that their felt consisted of a wool worked into a firm fabric, and was infused with vinegar. It does not seem that the ancients put it to that test which we have of late, in buildings, for checking the propagation of sound. The felt manufactured by Borradaile and Co. is found to do well, I believe, as *pugging* for deafening sound, either between the joists of stories, or in partitions. It has been adopted, but to answer different ends, at the Penitentiary, British Museum, National Gallery, New Post Office, and many other edifices, both public and private. — *Frederick Lush. July* 19. 1838.

The Architecture of Gin Palaces has been once or more the theme of satire in your pages; nor is silence upon a topic of this nature wished for, seeing that they every where meet the eye, and that every man of taste would rather happen upon such as were the fair daughters of the goddess Beauty, than those of an opposite genus. We may hope, too, that these gin palaces, or

temples, as some have it, will pave the way for a better style in our metropolis; for it will be the aim of all who can to outvie their neighbours; so that, as long as this spirit of emulation is kept up, we may expect to find some new forms bodied forth; something which we shall either wonder at or admire; and on this score, no doubt, many, who have a love for art, are friendly to these gin palaces; although, looking to the morals of the common people, a great deal, of course, must be said against them. There is often to be seen in them good sense joined to taste, and an originality of thought, which one might look for in vain in works of a higher grade: indeed, these public haunts, as well as our new streets, have done much towards improving the architecture of our day; besides the subservient arts of decorative painting, letter-writing, carving, and general interior finishings; thus, as it has been truly said, "*there is some soul of goodness in things evil.*" I have observed in many that the yoke of precedent and authority, which so much fetters the genius of the architect, has been cast off: not that I consider the best models of antiquity should be lost sight of, or may be passed over as things unworthy of our attention; on the contrary, I think the more we depart from those standards of excellence, the further we stray from those paths which lead to eminence in the fine arts: but still, whenever an edifice gives us proofs of a creative mind, and bears a stamp of its own, it is sure to please, provided the three conditions of well-building (to borrow the language of Wotton) have been complied with; viz. commodity, firmness, and delight.

One fault, that is common in these gin palaces, as well as in buildings of higher pretensions, is the opposition of two extremes *; that is to say, a bare wall, or nearly so, is often brought to bear against another part or side which is, on the other hand, overcharged with ornament; a practice that always offends the eye of the judicious critic; because, without a unity of style, there can be no harmony in the composition, and, therefore, no beauty.

Perhaps there are very few, in the list of architects now living, who would risk their credit, as they might do, by fashioning a style to accord in a close degree with the nature and purposes of these buildings.† Yet it happens, by a strange fatality, that most of our buildings betray a want of fitness. What does well in one edifice is ill-suited to another, as regards the designment of the work. Whereas, throughout the whole range of our architecture, there obtains a monotony of style. With the ancients it was far otherwise. Seldom would a private citizen dare to employ the column with its appendages to his *own* abode. These beautiful parts of their orders the Grecians had such an exalted idea of, that they deemed them fit only for those edifices that were among the grandest or most sacred. — *Frederick Lush. Aug.* 1838.

Intended Improvements at Westminster.—A company has been formed, the object of which is to take down a nest of houses in a quarter of Westminster (lying between the Palace and Parliament Houses) which, owing to want of drainage, has sadly poisoned the lives of the poor who live thereabouts; where vice too, that was bred there, has long broken the peace and good order of such

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* This is the case in the new addition to the Eagle Tavern, City Road, which, in spite of that glaring defect, when seen from one point of view, stands, may-be, foremost in buildings of this description. The chief façade has its lower part rusticated, capped with sailing-course and trusses under; above which are Corinthian columns with antæ at the quoins, supporting a bold entablature and balustrade: each side of the building is crowned in the centre by an *eagle*.

† There might be, for instance, such ornaments held forth to our gaze as would call to our mind, more than at present, that solace to sadness and balm of care, which the gaiety of feasting and mirth-making brings to the heart; in the drinking joys of Bacchus, and the blessings which he pours out; or our old father Noah, who first planted the vine, and tasted the juice of the grape, might live again in the memory, if there were a certain aptitude; which, however, it is far easier to conceive than actually apply.

places as neighbour that part of the metropolis.* Better streets, with squares, &c., are proposed in their stead. A company, that has such an end in view as this, is entitled to a share of our consideration; as by it are made more convenient thoroughfares, which improve not only this city of cities, but the moral estate of our fellow-creatures is improved also. Bardwell and Taylor are the architects whose names are attached to the plans of these intended alterations. — *Frederick Lush. Aug.* 9. 1838.

LEICESTERSHIRE. — *Ashby-de-la-Zouch new Church.* — The ceremony of laying the first stone of the new church at Ashby-de-la-Zouch (which was performed by the Earl Howe) took place on August 25. At four o'clock, those individuals who took part in the procession, together with a number of the friends of, and subscribers to, the intended structure, met, by previous notice, at the parish church, and soon after proceeded to the ground selected as the site of the new building. The procession, which was large, made a grand appearance. The church, which is now in the course of erection, is to be of stone, and consists of a nave 70 ft. by 46 ft. 6 in.; a recess at the east end 22 ft. by 9 ft., for the communion, flanked by a vestry and porch. The principal entrance is under the tower, which is 11 ft. square within, and 65 ft. high, with double rectangular buttresses, terminated by four lofty octangular pinnacles. The side entrances and staircases to the galleries are on the right and left of the tower, and correspond externally with the nave. The style of the church is early English, which is strictly perserved throughout; and it is capable of containing upwards of 900 persons. The contract for the erection does not exceed 2700*l.*; and it is expected to be completed by the latter end of next year. We hear that the liberality of a few individuals has suggested the addition of a spire, for which the design is well adapted; and we sincerely hope that so truly English a termination may not be abandoned for want of sufficient funds. (*Derby Mercury*, Aug. 29. 1838.)

SCOTLAND.

Colossal Statue at Golspie. — The gigantic statue in progress, to the memory of the late Duke of Sutherland, which is to crown the summit of the monument at Benraggie, is now nearly finished. The artist, Mr. Theakstone, has succeeded in forming an admirable likeness of the lamented nobleman; and, when all the parts of the statue are put together, its colossal dimensions (30 ft.), its elevated situation, and its imposing attitude, will render it a conspicuous landmark, as well as ornament, to that country which the duke did so much to cultivate and adorn. Temporary huts have been constructed on the top of the mountain for the workmen engaged in placing the statue; and in about a month the whole will be fixed and completed. (*Inverness Courier*, as quoted in the *Morn. Chron.* Aug. 28. 1838.)

ERRATUM. — In page 386. line 10. from bottom, for "chamber. The" read "chamber, the"; substituting a comma for the full stop after "chamber."

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* Every reflecting person must be aware of the great good that would result from *piercing* this nook in London. The bill of Sir Matthew Wood, Bart., however, for carrying that measure has been rejected in the House of Commons, on the ground of accomplishing it by tontine. But another bill, which has passed both houses of Parliament, for effecting an opening in the city, by making a way from Farringdon Street to the Great Northern Road, would be equally, if not more, beneficial than the former one, as respects the comforts and well-being of the lower classes of society, and the community at large.